

C. difficile surveillance

Quarterly report

October - December 2016

Key points

- CDI reports for hospital inpatients aged 65 years and over increased by 2% (from 61 to 62 episodes) during October - December 2016 compared to July - September 2016.
- CDI rate per 1,000 bed days decreased by 1% during October - December 2016 compared to July - September 2016.
- CDI reports for community patients aged 65 years and over decreased by 19% (from 43 to 35 episodes) during October - December 2016 compared to July - September 2016.
- Total CDI reports, for hospital inpatients and community patients combined, aged two years and over, decreased by 10% during October - December 2016 compared to July - September 2016 (from 129 to 116 episodes).
- CDI reports for hospital inpatients aged 65 years and over increased by 2% between the 2014/15 and 2015/16 financial years.
- During July - September 2016 the most prevalent ribotypes for CDI inpatients are 002 (17%), 078 (14%), and 193 (8%) (Table 1) and in the community are 002 (16%), 023 (13%) and 078 (13%) (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)

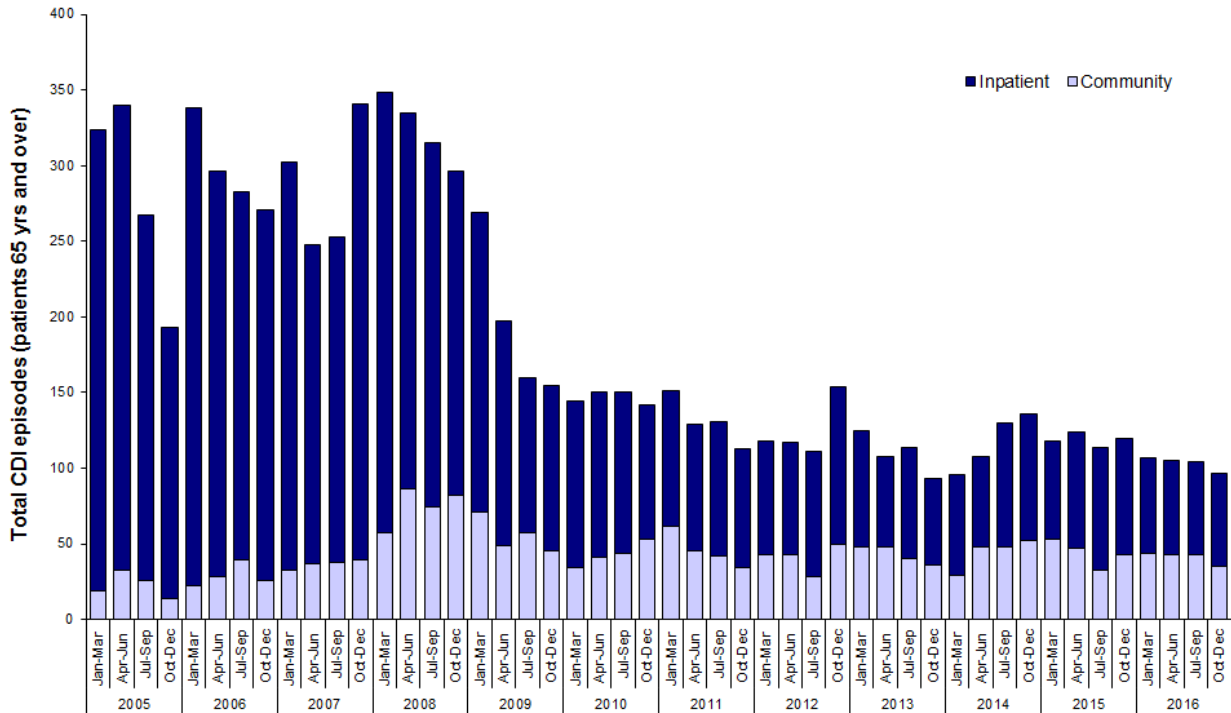


Figure 1: Total CDI episodes, inpatient and community, in Northern Ireland, by quarter (patients ≥ 65 years), between 2005 and 2016

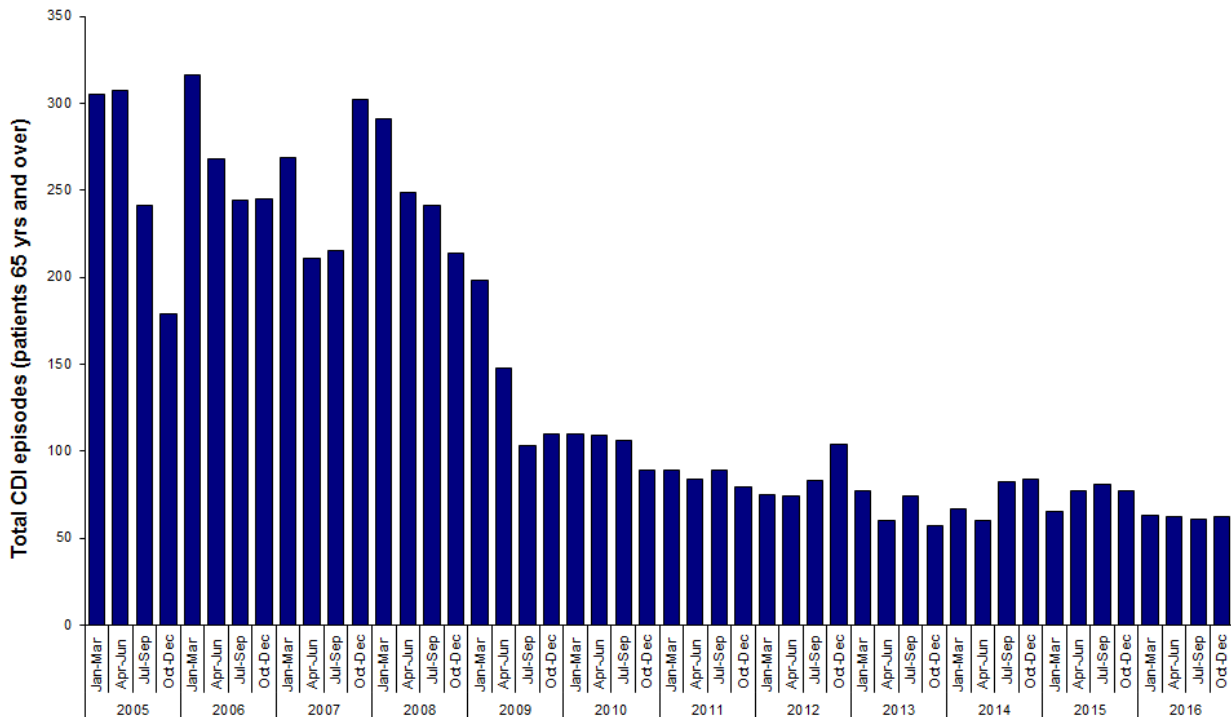


Figure 2a: Total CDI inpatient episodes in Northern Ireland, by quarter (patients ≥ 65 years), between 2005 and 2016

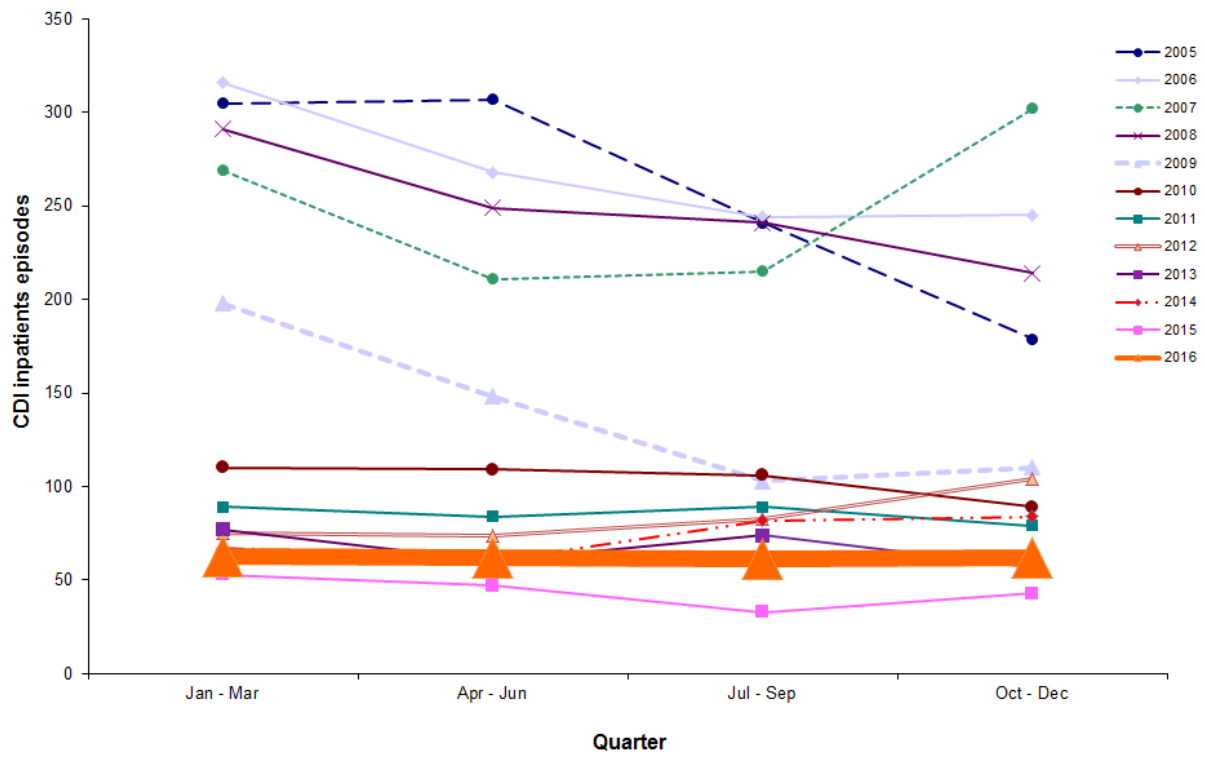


Figure 2b: Total CDI inpatient episodes in Northern Ireland, by quarter (patients \geq 65 years), between 2005 and 2016

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.

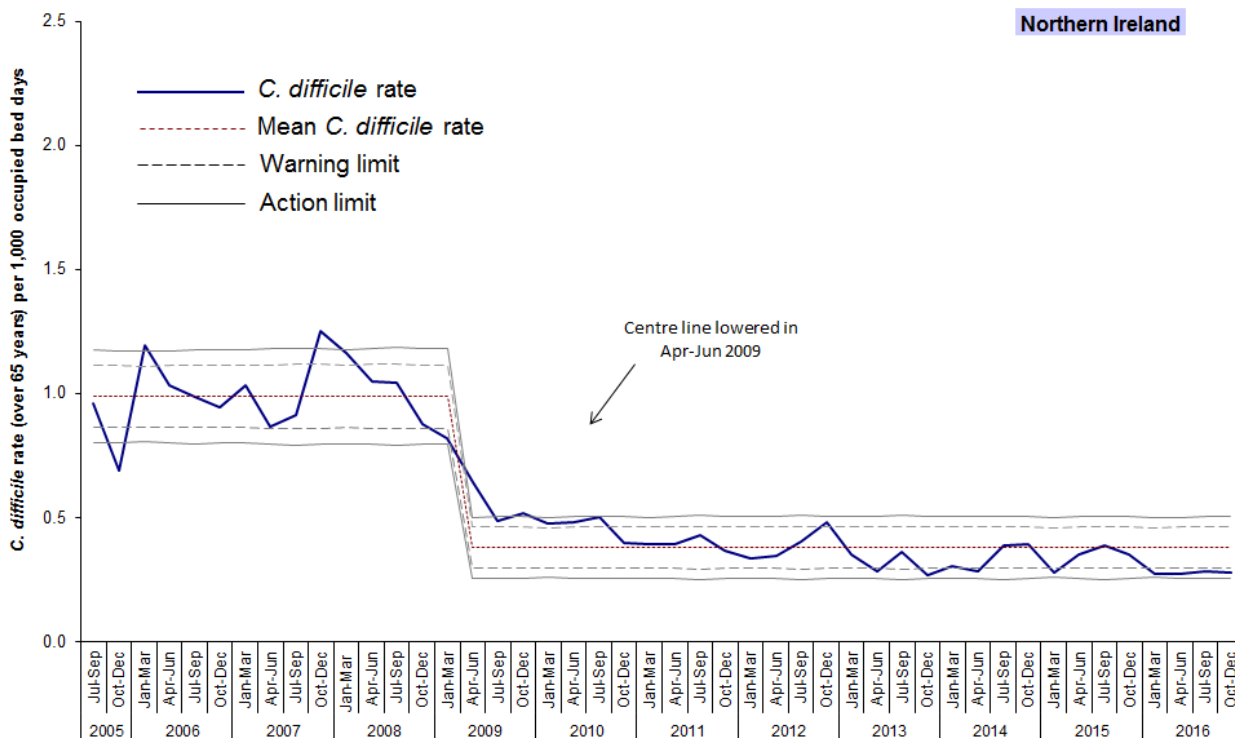


Figure 3: Statistical process control chart for quarterly *C. difficile* rates among inpatients in Northern Ireland aged 65 years and over (for HSCT level, see appendix B)

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, January - December 2016

Ribotype	Jan - Mar 2016		Apr - Jun 2016		Jul - Sep 2016		Oct - Dec 2016	
	Number	%	Number	%	Number	%	Number	%
001	6	7.3	1	1.3	2	2.4	1	1.3
002	8	9.8	4	5.3	8	9.8	13	16.7
005	2	2.4	6	8.0	3	3.7	4	5.1
014	4	4.9	2	2.7	6	7.3	1	1.3
015	5	6.1	1	1.3	9	11.0	2	2.6
020	4	4.9	5	6.7	4	4.9	2	2.6
023	5	6.1	2	2.7	3	3.7	5	6.4
027	0	0.0	0	0.0	0	0.0	0	0.0
078	16	19.5	18	24.0	9	11.0	11	14.1
106	1	1.2	2	2.7	4	4.9	2	2.6
193	1	1.2	5	6.7	3	3.7	6	7.7
Other	11	13.4	13	17.3	16	19.5	17	21.8
Not groupable**	9	11.0	9	12.0	7	8.5	9	11.5
Not on ribotype list	5	6.1	4	5.3	4	4.9	1	1.3
Not isolated***	5	6.1	3	4.0	4	4.9	4	5.1
Total	82		75		82		78	

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, January - December 2016

Ribotype	Jan - Mar 2016		Apr - Jun 2016		Jul - Sep 2016		Oct - Dec 2016	
	Number	%	Number	%	Number	%	Number	%
001	0	0.0	3	6.0	0	0.0	1	2.6
002	4	7.8	4	8.0	5	10.6	6	15.8
005	4	7.8	0	0.0	4	8.5	2	5.3
014	4	7.8	1	2.0	4	8.5	4	10.5
015	4	7.8	4	8.0	2	4.3	1	2.6
020	1	2.0	1	2.0	0	0.0	1	2.6
023	3	5.9	1	2.0	2	4.3	5	13.2
027	0	0.0	0	0.0	0	0.0	0	0.0
078	13	25.5	16	32.0	3	6.4	5	13.2
106	1	2.0	1	2.0	3	6.4	0	0.0
193	2	3.9	3	6.0	2	4.3	0	0.0
Other	7	13.7	7	14.0	10	21.3	3	7.9
Not groupable**	3	5.9	6	12.0	6	12.8	8	21.1
Not on ribotype list	2	3.9	0	0.0	3	6.4	2	5.3
Not isolated***	3	5.9	3	6.0	3	6.4	0	0.0
Total	51		50		47		38	

* 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 023 in Northern Ireland Hospital Inpatients and Community Patients, October - December 2016

	002 (n =16)		078 (n = 13)		023 (n = 10)		
Age	range	47 - 94	42 - 92	36 - 101			
	median	80	81	82			
Sex		n	%	n	%	n	%
	Female	8	50.0	7	53.8	6	60.0
	Male	8	50.0	6	46.2	4	40.0
Trust							
	Belfast	5	31.3	8	61.5	4	40.0
	Northern	4	25.0	0	0.0	2	20.0
	South Eastern	3	18.8	1	7.7	1	10.0
	Southern	2	12.5	2	15.4	1	10.0
	Western	2	12.5	2	15.4	2	20.0
Source							
	Inpatient	10	62.5	8	61.5	5	50.0
	Community*	6	37.5	5	38.5	5	50.0

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

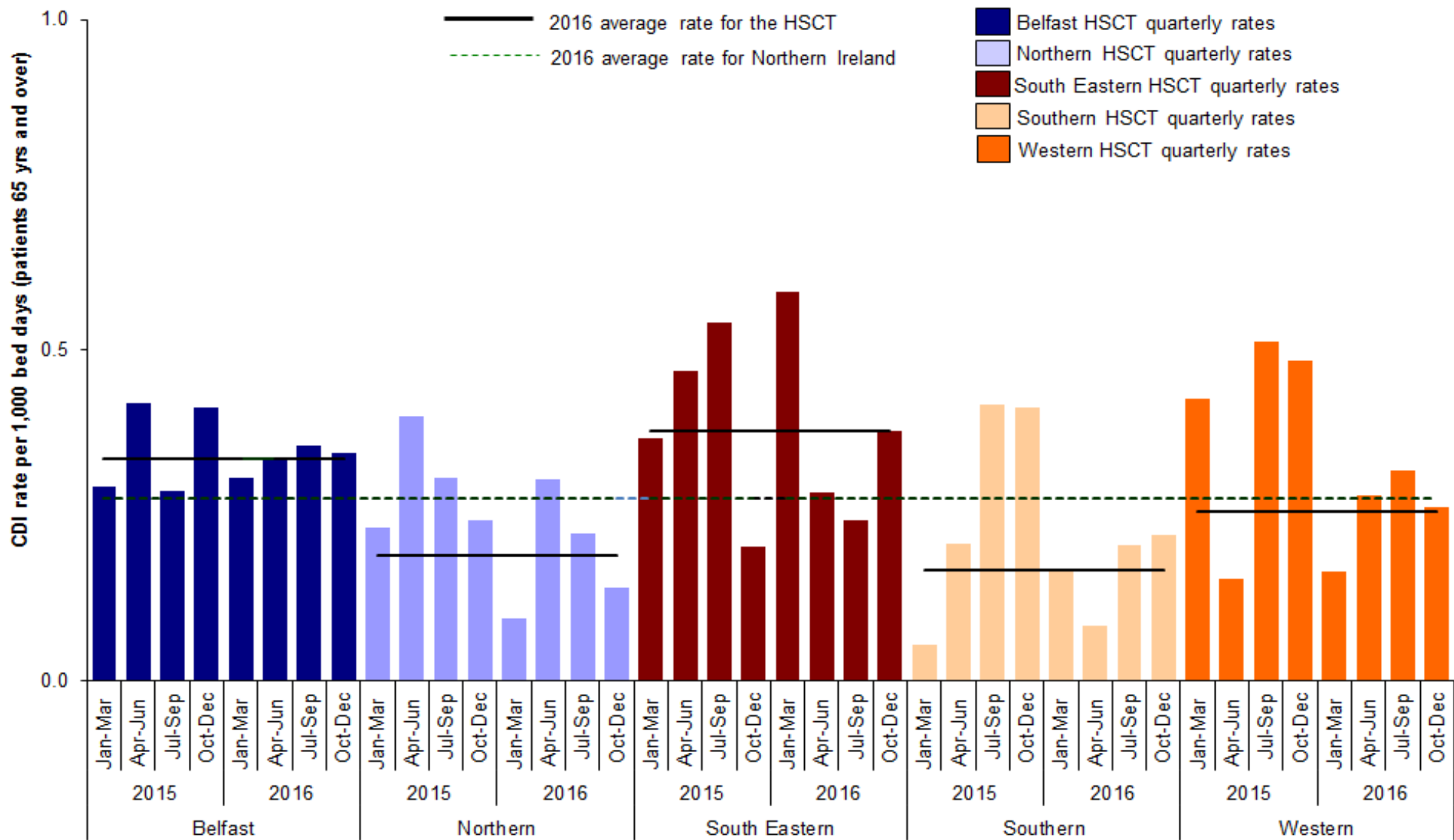


Figure 4: Quarterly rates of *C. difficile* among inpatients aged 65 years and over, by HSCT, January 2015 - December 2016, compared with annual Northern Ireland and HSCT rates for 2016

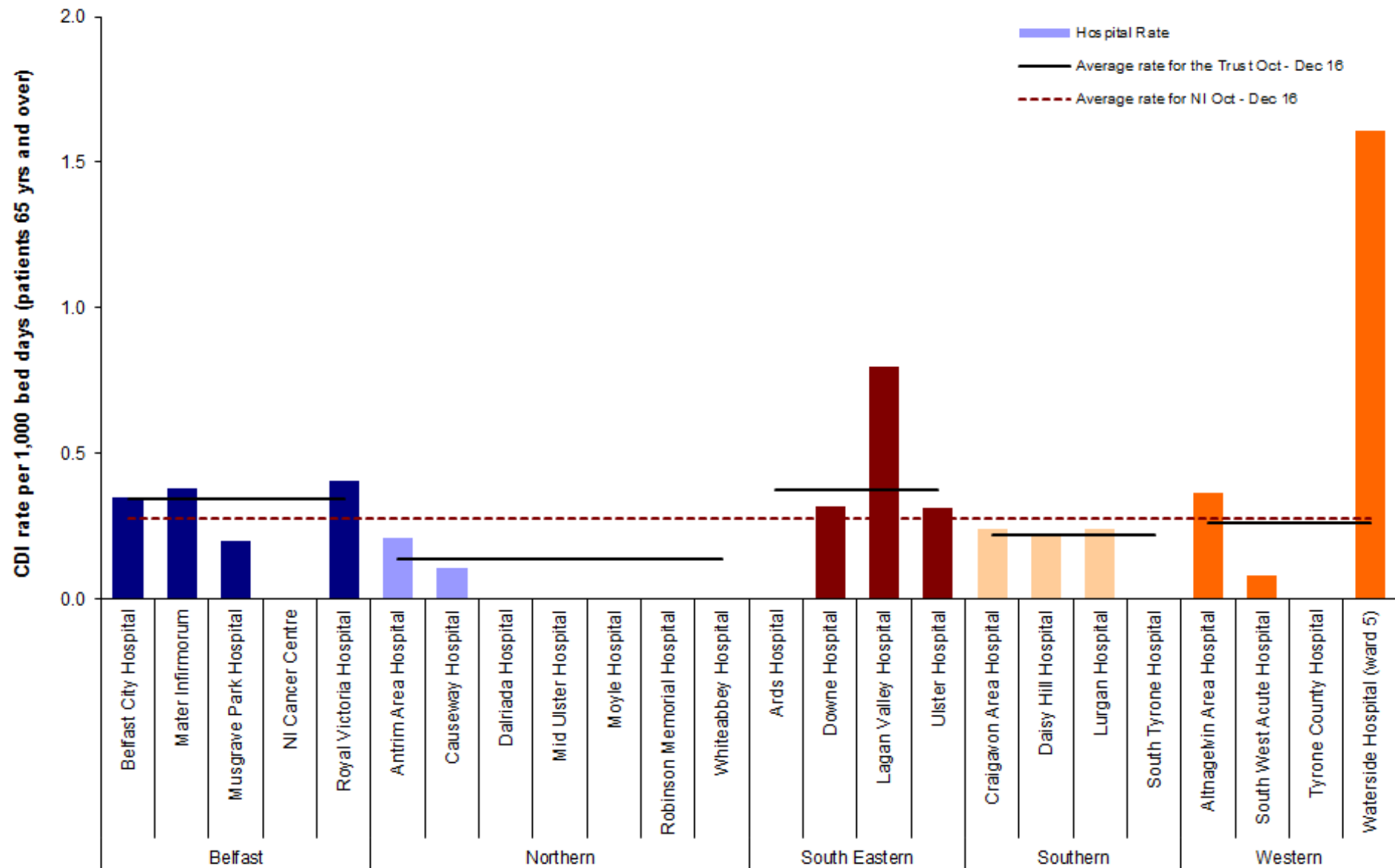


Figure 5: *C. difficile* rates during October - December 2016 - Inpatients aged 65 years and over, by hospital, including HSCT rates and average rate for Northern Ireland (see appendix A, Table 4)

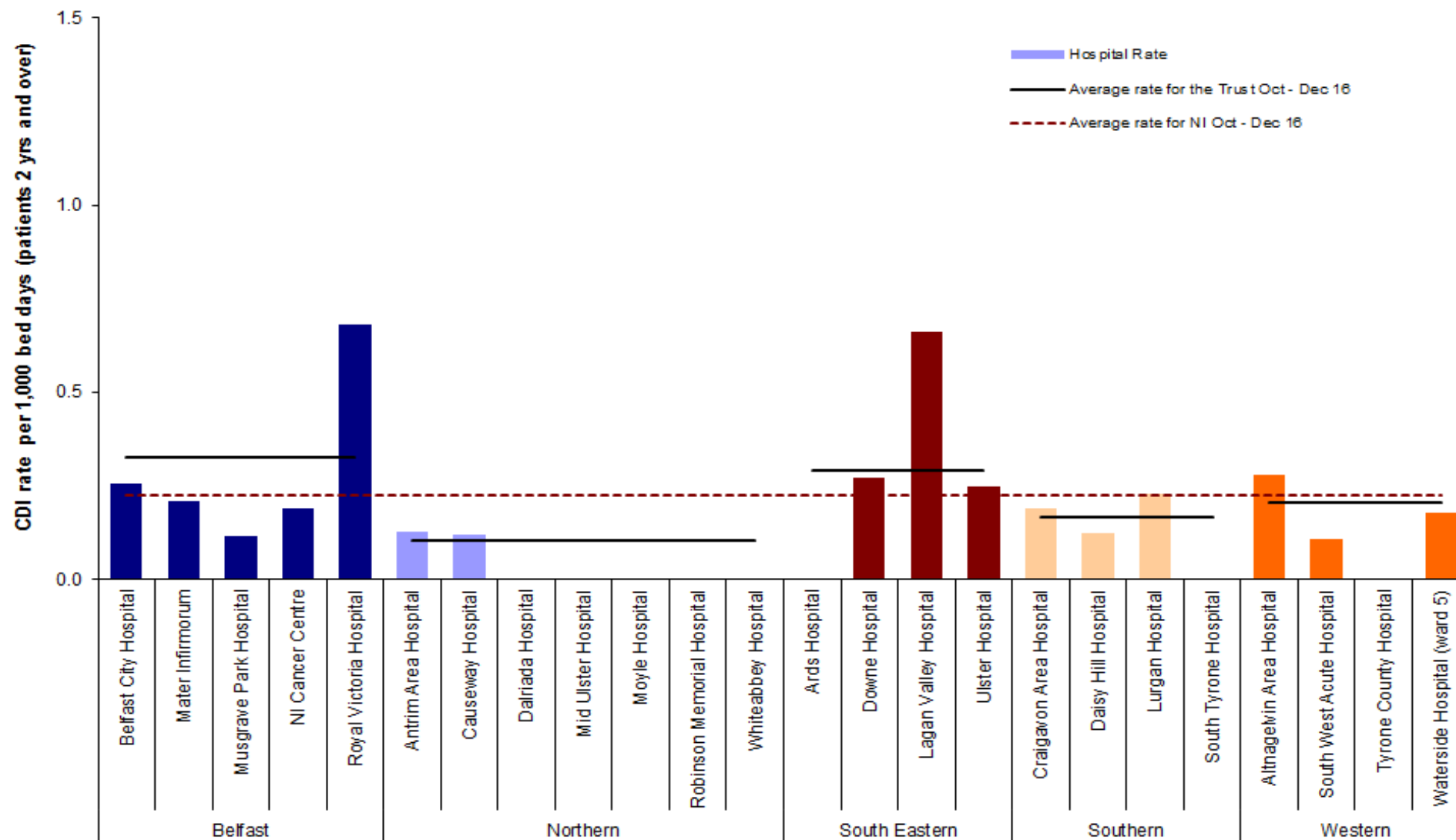


Figure 6: *C. difficile* rates during October - December 2016 - Inpatients aged two years and over, by hospital, including HSCT rates and average rate for Northern Ireland (see appendix A, Table 6)

Appendix A

Table 4: Quarterly rate of *C. difficile* reports in patients aged 65 years and over, by hospital, January - December 2016

Hospital	Jan - Mar 2016	Apr - Jun 2016	Jul - Sept 2016	Oct - Dec 2016
	Rate	Rate	Rate	Rate
Belfast City Hospital	0.211	0.540	0.423	0.351
Mater Infirmorum	0.526	0.086	0.092	0.381
Musgrave Park Hospital	0.182	0.094	0.302	0.200
NICCO (formerly at Belvoir Park)	0.000	0.370	1.006	0.000
Royal Group of Hospitals	0.356	0.393	0.364	0.406
Belfast Health & Social Care Trust	0.307	0.338	0.355	0.344
Antrim Area Hospital	0.171	0.387	0.305	0.208
Causeway Hospital	0.000	0.198	0.113	0.105
Dalriada Hospital	0.000	0.000	0.000	0.000
Mid Ulster Hospital	0.000	0.000	0.000	0.000
Moyle Hospital	0.000	0.000	0.000	0.000
Robinson Memorial Hospital	0.000	0.548	0.000	0.000
Whiteabbey Hospital	0.000	0.283	0.276	0.000
Northern Health & Social Care Trust	0.094	0.303	0.221	0.139
Ards Hospital	0.000	0.000	0.620	0.000
Downe Hospital	0.687	0.000	0.699	0.320
Lagan Valley Hospital	0.808	0.492	0.346	0.799
Ulster Hospital	0.565	0.286	0.149	0.312
South Eastern Health & Social Care Trust	0.587	0.284	0.243	0.377
Craigavon Area Hospital	0.291	0.097	0.319	0.243
Daisy Hill Hospital	0.000	0.110	0.110	0.219
Lurgan Hospital	0.000	0.000	0.000	0.241
South Tyrone Hospital	0.000	0.000	0.000	0.000
Southern Health & Social Care Trust	0.164	0.082	0.205	0.219
Altnagelvin Area Hospital	0.205	0.523	0.491	0.366
South West Acute Hospital	0.160	0.000	0.172	0.083
Tyrone County Hospital	0.000	0.000	0.000	0.000
Waterside Hospital (Wards 1, 2, 3, 5)	0.000	0.000	0.000	1.610
Western Health & Social Care Trust	0.165	0.279	0.318	0.262
NI TOTAL	0.272	0.272	0.281	0.277

Table 5: Quarterly episodes of *C. difficile* reports in patients aged 65 years and over, by Trust, January - December 2016

Trust	Jan - Mar 2016	Apr - Jun 2016	Jul - Sept 2016	Oct - Dec 2016
	Episodes	Episodes	Episodes	Episodes
Belfast Health & Social Care Trust	23	25	25	24
Northern Health & Social Care Trust	4	13	9	6
South Eastern Health & Social Care Trust	24	11	9	15
Southern Health & Social Care Trust	6	3	7	8
Western Health & Social Care Trust	6	10	11	9
NI TOTAL	63	62	61	62
NI community TOTAL	44	43	43	35

Appendix A

Table 6: Quarterly rate of *C. difficile* reports in patients aged two years and over, by hospital, January - December 2016

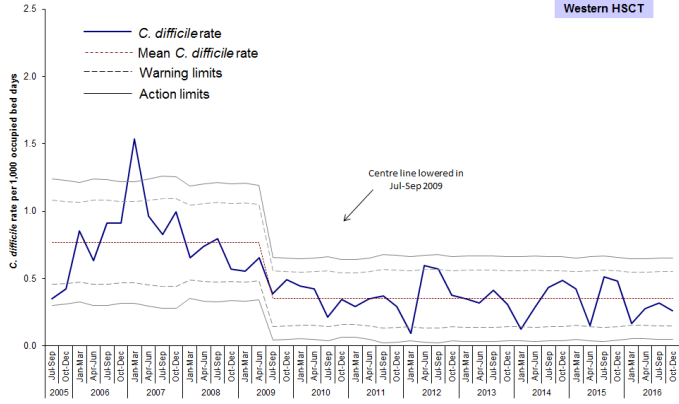
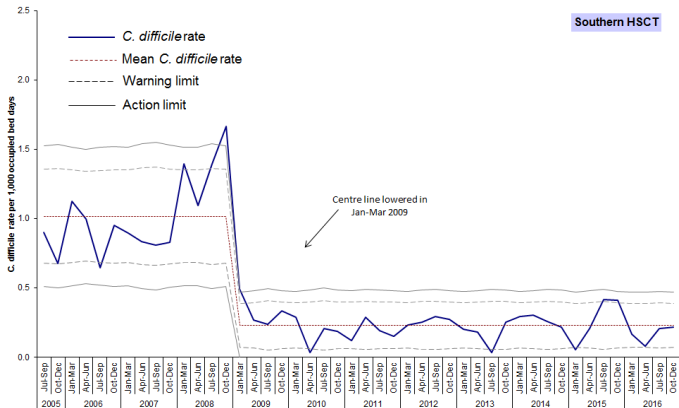
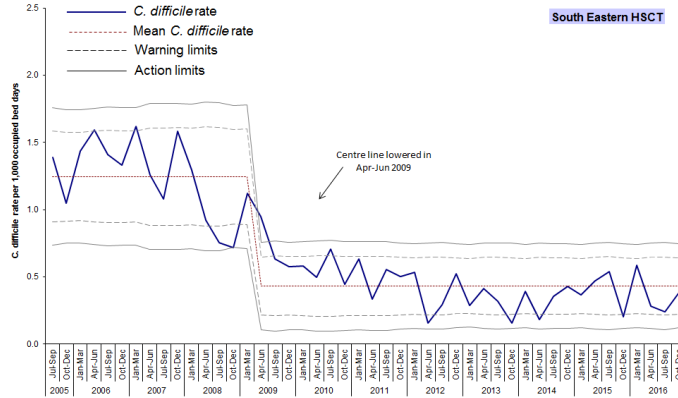
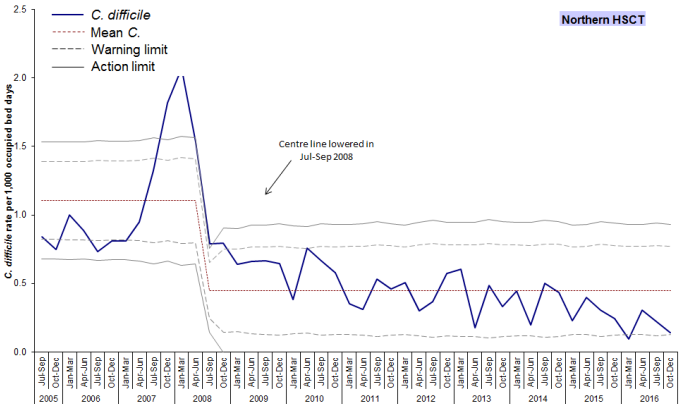
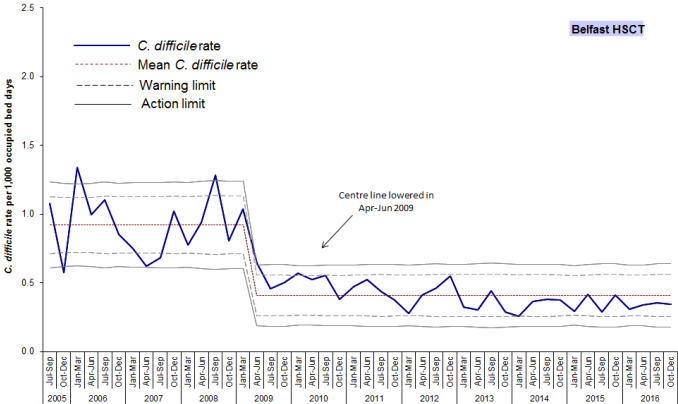
Hospital	Jan - Mar 2016	Apr - Jun 2016	Jul - Sept 2016	Oct - Dec 2016
	Rate	Rate	Rate	Rate
Belfast City Hospital	0.141	0.361	0.339	0.257
Mater Infirmorum	0.301	0.075	0.077	0.208
Musgrave Park Hospital	0.111	0.057	0.242	0.117
NICCO (formerly at Belvoir Park)	0.171	0.172	0.706	0.191
Royal Group of Hospitals	0.184	0.212	0.243	0.680
Belfast Health & Social Care Trust	0.182	0.207	0.266	0.325
Antrim Area Hospital	0.153	0.284	0.241	0.125
Causeway Hospital	0.060	0.115	0.120	0.121
Dalriada Hospital	0.000	0.000	0.000	0.000
Mid Ulster Hospital	0.000	0.000	0.000	0.000
Moyle Hospital	0.000	0.000	0.000	0.000
Robinson Memorial Hospital	0.000	0.547	0.000	0.000
Whiteabbey Hospital	0.000	0.259	0.266	0.000
Northern Health & Social Care Trust	0.104	0.226	0.186	0.104
Ards Hospital	0.000	0.000	0.601	0.000
Downe Hospital	0.528	0.000	0.570	0.271
Lagan Valley Hospital	0.783	0.526	0.423	0.660
Ulster Hospital	0.420	0.227	0.148	0.247
South Eastern Health & Social Care Trust	0.459	0.245	0.218	0.293
Craigavon Area Hospital	0.159	0.079	0.220	0.188
Daisy Hill Hospital	0.061	0.063	0.063	0.124
Lurgan Hospital	0.000	0.000	0.000	0.229
South Tyrone Hospital	0.000	0.000	0.000	0.000
Southern Health & Social Care Trust	0.114	0.065	0.153	0.165
Altnagelvin Area Hospital	0.276	0.362	0.312	0.277
South West Acute Hospital	0.162	0.000	0.114	0.107
Tyrone County Hospital	0.000	0.000	0.000	0.000
Waterside Hospital (Wards 1, 2, 3, 5)	0.000	0.000	0.000	0.176
Western Health & Social Care Trust	0.207	0.208	0.212	0.205
NI TOTAL	0.206	0.194	0.218	0.226

Table 7: Quarterly episodes of *C. difficile* reports in patients aged 2 years and over, by Trust, January - December 2016

Trust	Jan - Mar 2016	Apr - Jun 2016	Jul - Sept 2016	Oct - Dec 2016
	Episodes	Episodes	Episodes	Episodes
Belfast Health & Social Care Trust	26	28	35	30
Northern Health & Social Care Trust	7	15	12	7
South Eastern Health & Social Care Trust	29	15	13	18
Southern Health & Social Care Trust	7	4	9	10
Western Health & Social Care Trust	13	13	13	13
NI TOTAL	82	75	82	78
NI community TOTAL	51	50	47	38

Appendix B

Trends in *C. difficile* rates in inpatients aged 65 years and over, by HSCT and quarter, 2005–2016



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
Belfast	352	336	280	327	163	147	117	124	90	103	102
Northern	184	172	297	172	102	103	75	73	56	54	43
South Eastern	243	256	199	135	98	80	72	50	50	53	70
Southern	168	130	134	164	37	17	28	33	25	27	40
Western	96	132	109	104	71	46	35	58	37	53	43
Northern Ireland	1043	1026	1019	902	471	393	327	338	258	290	298