



National Public Health  
Service for Wales

Gwasanaeth Iechyd Cyhoeddus  
Cenedlaethol Cymru

Infection and Communicable Disease Service  
Gwasanaeth Heintiau a Chlefydau Trosglwyddadwy

Welsh Healthcare Associated Infections Programme (WHAIP)  
Rhaglen Heintiau sy'n Gysylltiedig a Gofal Iechyd Cymru (RHGGIC)

# All Wales

## Mandatory *Clostridium difficile* Surveillance

**01/01/07 - 31/12/07**

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## Introduction

Mandatory surveillance of *Clostridium difficile* in inpatients aged over 65 with diarrhoea in Welsh hospitals was introduced by the Welsh Assembly Government in January 2005. This is the 6<sup>th</sup> report of the surveillance scheme and covers the period 01/01/2007 to 31/12/2007.

The report contains the following:

1. Tabulated numbers of *C. difficile* and rates per 1000 admissions by NHS Trust in Wales for the period 01/01/2007 to 31/12/2007.
2. Tabulated numbers of *C. difficile* and rates per 1000 admissions by patient age and gender for the period 01/01/2007 to 31/12/2007.
3. Tabulated numbers of *C. difficile* and rates per 1000 admissions for the 10 hospital specialties with the highest number of reports of *C. difficile* for the period 01/01/2007 to 31/12/2007.
4. Monthly rates of *C. difficile* per 1000 admissions for all Wales and for individual Welsh Trusts presented in the form of statistical process control charts (explained in the notes for interpretation) for the period 01/01/2005 to 31/12/2007.
5. Tabulated annual numbers and rates of *C. difficile* for the 3 years that the surveillance has been running.

The National *C. difficile* Standards Group Report to the Department of Health (Journal of Hospital Infection, Vol. 56 (suppl. 1), February 2004) states that the diagnosis of *C. difficile* Associated Diarrhoea (CDAD) requires the detection of *C. difficile* toxins in diarrhoeal stool samples. Therefore, surveillance in Wales is restricted to *C. difficile* in inpatients with diarrhoea. However, very few laboratories are currently able to provide us with information on faecal consistency. To ensure comparability between sites, data from all positive *C. difficile* results from inpatients aged over 65 regardless of faecal consistency, have been presented.

The total *C. difficile* rate per 1000 admissions in inpatients aged over 65 in Wales for the period 01/01/2007 to 31/12/2007 was 16.84, ranging from 8.6 to 27.7. The rate for the equivalent period last year was 14.80 (NB this figure has been updated since the original report was published). There has been a 13% increase in the numbers of *C. difficile* isolates reported between years 2 and 3 of surveillance (2006 – 2586 *C. difficile*; 2007 – 2926 *C. difficile*). There was an increase in the number of isolates reported, from 9 of the 14 Trusts.

Rates in females were higher than in males and in general rates increased with increasing age. The highest numbers of *C. difficile* were reported from the specialties of general medicine and geriatric medicine. In the 10 specialties with the highest numbers of *C. difficile*, the highest rates were in nephrology (68.73) and geriatric medicine (65.34).

The most recently published data from the mandatory *C. difficile* reporting scheme for hospital Trusts in England are for up to December 2007. Rates for English hospital Trusts are not directly comparable with Welsh data because the English surveillance scheme now covers all positive results from patients over 2 years old. It also includes *C. difficile* results from the community as well as from hospital inpatients and the denominator data used is bed days in the 65+ age group. Bed day data are not

available by patient age group for Wales, therefore admissions in the over 65s have been used as denominator data. The English data are available at: <http://www.hpa.org.uk/web/HPAweb&Page&HPAwebAutoListName/Page/1191942126541>

Data from the Scottish *C. difficile* surveillance scheme has been reported up to December 2007. These data are also not directly comparable with the Welsh data. They are available at: <http://www.hps.scot.nhs.uk/ewr/article.aspx>

This report will also be distributed to the Medical Directors and Chief Executives of Welsh NHS Trusts.

## Notes for Interpretation of *C. difficile* Data

1. The report covers isolates with specimen dates in the period 01/01/2007 to 31/12/2007.
2. Reports of *C. difficile* were obtained by automatic extraction from laboratory information systems via Datastore for all laboratories in Wales that have Datastore. One laboratory provided us with an electronic file from their laboratory system.
3. Only reports from hospital inpatients aged over 65 have been included.
4. All faecal consistencies have been included to ensure comparability between laboratories, since at this time very few laboratories were able to provide faecal consistencies.
5. Reports of *C. difficile* have been deduplicated: any positive *C. difficile* reports occurring within 28 days of another positive *C. difficile* report from the same patient have been excluded from the data set.
6. The denominator data used are admissions to Welsh hospitals aged over 65. The data was obtained from the Health Solutions Wales database, PEDW, and is specific to the time period of the report.
7. Rates by Trust include numerator and denominator data from all hospitals in the Trust.
8. Laboratories should test specimens for *C. difficile* using either an immunoassay detecting both toxin A and toxin B, or a neutralised cell toxicity assay. One laboratory is currently only testing for toxin A, therefore this may have resulted in a small number of *C. difficile* cases not being identified.
9. The median is the rate in the middle of all the rates, when ordered from lowest to highest.
10. Monthly trend data for Wales and for individual Trusts are presented in the form of statistical process control charts. SPC charts assume that rates within a Trust will be largely similar over time. They allow the distinction between natural variation (rates that fall within the limits) and special cause variation, where something unusual is occurring in a Trust (rates that fall outside the limits). A rate that falls outside the control limits and also certain patterns in the Trend data should lead to a search for the explanation for the situation, which has resulted in the outlier rate or pattern. This could be the result of either a true high or low rate of *C. difficile* or due to reporting biases e.g. incomplete reporting or over-reporting. Further information about SPC charts has been provided previously.
11. Data represents *C. difficile* diagnosed in a Trust; the *C. difficile* was not necessarily acquired in that Trust.
12. Trusts vary in their case mix. Differences in numbers of patients with increased vulnerability to *C. difficile* may contribute to differences in rates in different locations.

***Clostridium difficile* surveillance in hospital inpatients aged >65**

**Surveillance Period: 01/01/2007 - 31/12/2007**

**Table 1. All Wales Rates per 1000 Admissions**

	<i>C. difficile</i>	Admissions	Rate/1000 Admissions
<b>All Wales Rate</b>	<b>2926</b>	<b>173773</b>	<b>16.84</b>
All Wales min	21	904	8.60
All Wales max	604	31999	27.70
All Wales average	209.00	12412.36	16.27
All Wales median	160.50	11299.50	14.93

**Table 2. All Wales Rates per 1000 Admissions by Patient Age Group**

<b>Age Group</b>	<i>C. difficile</i>	Admissions	Rate/1000 Admissions
66-75	663	68426	9.69
76-85	1372	71580	19.17
86-95	831	31643	26.26
96+	60	2124	28.25

**Table 3. All Wales Rates per 1000 Admissions by Patient Gender**

<b>Patient Gender</b>	<i>C. difficile</i>	Admissions	Rate/1000 Admissions
Female	1794	93803	19.13
Male	1132	79966	14.16

**Table 4. All Wales Rates per 1000 Admissions by Hospital Specialty for the 10 specialties with the highest numbers of *C. difficile* reports**

<b>Specialty</b>	<b><i>C. difficile</i></b>	<b>Admissions</b>	<b>Rate/1000 Admissions</b>
General Medicine	1271	69351	18.32
Geriatric Medicine	519	7943	65.34
General Surgery	189	23251	8.13
Trauma & Orthopaedic	159	19199	8.28
Nephrology	102	1484	68.73
GP Other Than Maternity	45	4885	9.21
Cardiology	39	7225	5.40
Gastroenterology	35	2665	13.13
Urology	32	8076	3.96
Haematology	32	1131	28.29
Others	236		
Not Known	267		

**MONTHLY TREND DATA**  
**01/01/07 - 31/12/07**

**&**

**ANNUAL TREND DATA**  
**2005 - 2007**

**All Wales**

**Monthly Trend Data  
01/01/07 - 31/12/07**

**&**

**Annual Trend Data  
2005 - 2007**

**Number of *C. difficile* reports in hospital inpatients aged over 65 and rate per 1000 hospital admissions by month in Wales**

<b>Year</b>	<b>Month</b>	<b>No. <i>C. difficile</i></b>	<b>No. Admissions</b>	<b>Rate/1000 Admissions</b>
2007	1	277	16037	17.27
	2	262	14329	18.28
	3	297	15045	19.74
	4	256*	14289	17.92
	5	257	14660	17.53
	6	233*	13908	16.75
	7	254	14502	17.51
	8	199	14357	13.86
	9	175	13535	12.93
	10	253	15062	16.80
	11	238	14244	16.71
	12	225	13805	16.30

\* Specimens from Welsh hospitals processed in English laboratories are now included in the surveillance and data for the first half of 2007 have been updated. There have also been changes to the admissions data for 2 Trusts for the first half of 2007, affecting the all Wales figures.

**Number of *C. difficile* reports in hospital inpatients aged over 65 and rate per 1000 hospital admissions by year in Wales**

<b>Year</b>	<b>Total <i>C. difficile</i></b>	<b>Rate/1000 Admissions</b>
2005*	2614	14.84
2006*	2586	14.80
2007	2926	16.84

NB Data from these years may have been updated since the reports for these time periods were originally published.

Monthly rates of Clostridium difficile in inpatients aged over 65 per 1000 admissions in over 65s in Wales, 01/01/05 - 31/12/07

