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Public Health  
Wales

# ***CLOSTRIDIUM DIFFICILE***

## **MANDATORY SURVEILLANCE REPORT**

01/01/09 – 31/12/09

**ABERTAWA BRO MORGANNWG  
UNIVERSITY  
HEALTH BOARD**

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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 10<sup>th</sup> report of the surveillance scheme and covers the period 01/01/2009 to 31/12/2009. The report has been updated to reflect the new structure of the NHS in Wales, although some of the data collection period was before the establishment of the new Health Boards. The report contains:

1. Tabulated numbers of *C. difficile* and rates per 1000 admissions by Health Board in Wales for the period 01/01/2009 to 31/12/2009.
2. Tabulated numbers of *C. difficile* and rates per 1000 admissions by patient age and gender for the period 01/01/2009 to 31/12/2009.
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 01/01/2009 to 31/12/2009.
4. Tabulated monthly numbers and rates of *C. difficile* per 1000 admissions for all Wales, by Health Board and by major acute hospital for the period 01/01/2009 to 31/12/2009.
5. Tabulated annual numbers and rates of *C. difficile* per 1000 admissions for all Wales and by major acute hospital for the period for 2005 to 2009. Annual data has also been provided for the Health Boards that did not change structure in April 2008.
6. Monthly rates of *C. difficile* per 1000 admissions for all Wales, by Health Board and by major acute hospital, presented in the form of statistical process control charts (explained in the notes for interpretation) from 01/01/2009 to 31/12/2009, although some of the Health Boards SPC are only provided from 01/04/2008.
7. Numbers of *C. difficile* in inpatients aged 2 to 65 by Health Board in Wales for the period 01/01/2009 to 31/12/2009.

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 01/01/2009 to 31/12/2009 was 15.13, ranging from 6.59 to 22.41. The all Wales rate was on or above the upper control limit in January and February 2009 and below the lower control limit in August. The rate for 2008 was 17.05 per 1000 admissions.

Rates in females aged over 65 were higher than in males and 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* in the over 65s, the highest rates were in nephrology (54.37) and geriatric medicine (40.79).

In the period 01/01/2009 to 31/12/2009, numbers of *C. difficile* from inpatients aged 2 to 65 represented 17% of the total numbers of *C. difficile* from hospital inpatients.

Data from the English *C. difficile* surveillance scheme has been reported up to March 2010 and is available on the HPA website:  
[http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb\\_C/1254510678961](http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1254510678961)

Data from the Scottish *C. difficile* surveillance scheme has been reported up to December 2009 and is available on the Health Protection Scotland website:  
<http://www.hps.scot.nhs.uk/ewr/article.aspx>

Data from the Northern Ireland *C. difficile* surveillance scheme has been reported up to March 2010 and is available on the Public Health Agency Northern Ireland website  
<http://www.cdscni.org.uk/publications/QuarterlyReports/CdiffMar10.pdf>

This report will also be distributed to the Welsh Assembly Government, Medical Directors and Chief Executives of Health Boards.

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

1. The report covers isolates with specimen dates in the period 01/01/2009 to 31/12/2009.
2. Reports of *C. difficile* were obtained by automatic extraction from laboratory information systems via Datastore.
3. All faecal consistencies have been included to ensure comparability between laboratories, since at this time very few laboratories were able to provide faecal consistencies.
4. 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.
5. 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.
6. Rates by Trust include numerator and denominator data from all hospitals in the Trust.
7. 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.
8. The median is the rate in the middle of all the rates, when ordered from lowest to highest.
9. Monthly trend data for Wales, for major acute hospitals and for some Trusts are presented in the form of statistical process control charts. SPC charts assume that rates within a Trust/hospital 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/hospital (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.
10. Data represents *C. difficile* diagnosed in a Trust/hospital; the *C. difficile* was not necessarily acquired in that Trust/hospital.
11. Trusts/hospitals 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: 01/01/2009 - 31/12/2009**

**Table 1. Rates per 1000 admissions by Health Board**

<b>Health Board</b>	<b><i>C. difficile</i></b>	<b>Admissions</b>	<b>Rate/1000 Admissions</b>
ABMU	396	35679	11.10
<b>All Wales Rate</b>	2654	175457	15.13
All Wales min	14	772	6.59
All Wales max	802	41384	22.41
All Wales average	332	21932	14.54
All Wales median	336	21920	14.33

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

<b>Age Group</b>	<b><i>C. difficile</i></b>	<b>Admissions</b>	<b>Rate/1000 Admissions</b>
66-75	571	67797	8.42
76-85	1166	70737	16.48
86-95	841	34464	24.40
96+	76	2606	29.16

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

<b>Patient Gender</b>	<b><i>C. difficile</i></b>	<b>Admissions</b>	<b>Rate/1000 Admissions</b>
Female	1542	93951	16.41
Male	1112	81503	13.64

**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	1105	68459	16.14
Geriatric Medicine	339	8310	40.79
General Surgery	187	22644	8.26
Trauma/Orthopaedics	126	20202	6.24
Nephrology	102	1876	54.37
GP Other than maternity	64	4631	13.82
Urology	63	7984	7.89
Rehabilitation	49	4096	11.96
Gastroenterology	41	3497	11.72
Cardiology	29	8143	3.56
Others	197		
Not Known	352		

## Trend Data



**All Wales**

**Monthly Trend Data  
01/01/09 - 31/12/09  
&  
Annual Trend Data  
2005-2009**

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

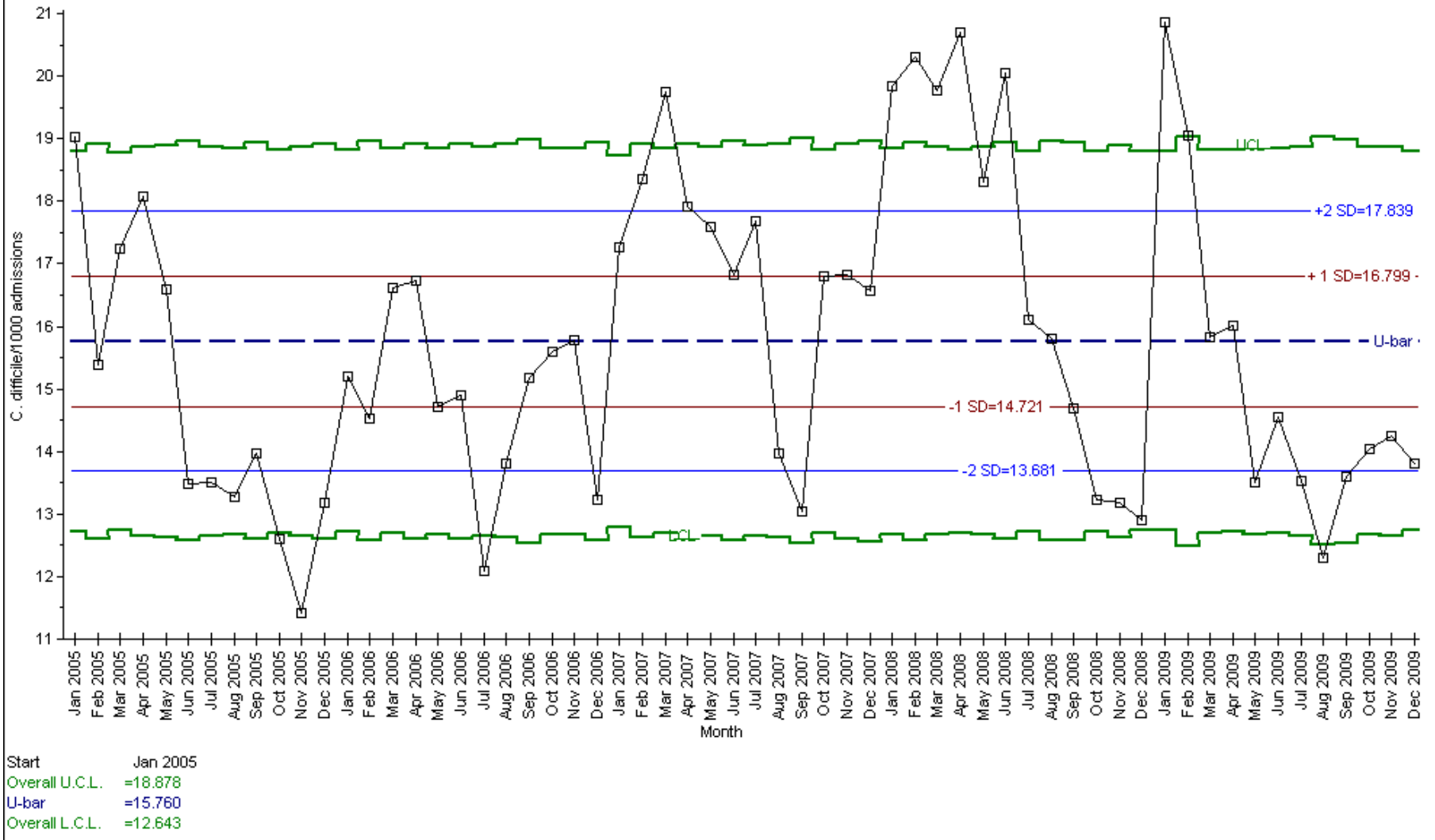
<b>Year</b>	<b>Month</b>	<b>No. <i>C. difficile</i></b>	<b>No. Admissions</b>	<b>Rate/1000 Admissions</b>
2009	1	322	15437	20.86
	2	252	13225	19.05
	3	240	15168	15.82
	4	244	15244	16.01
	5	201	14876	13.51
	6	218	14991	14.54
	7	199	14713	13.53
	8	164	13330	12.30
	9	185	13606	13.60
	10	208	14818	14.04
	11	208	14610	14.24
	12	213	15439	13.80

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

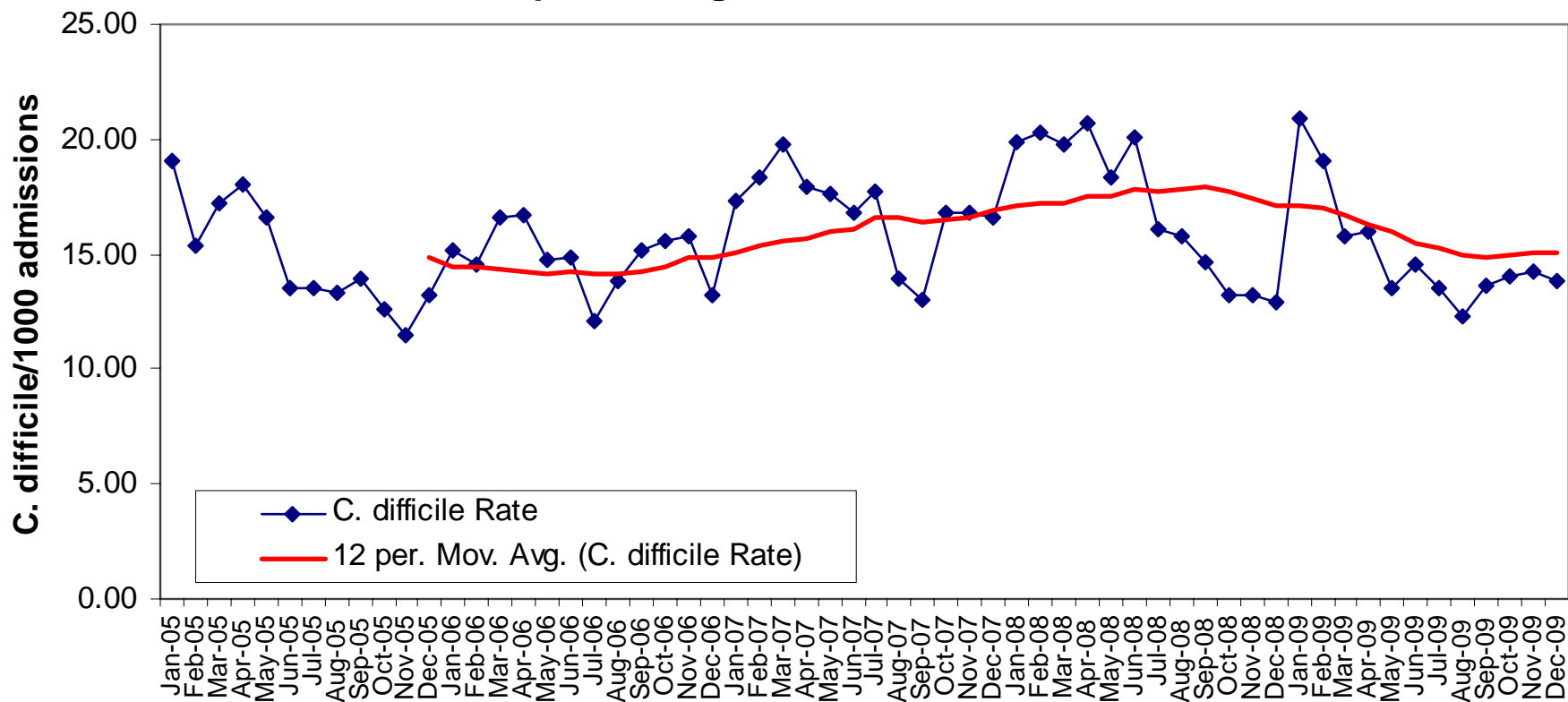
<b>Year</b>	<b>No. <i>C. difficile</i></b>	<b>Rate/1000 Admissions</b>
2005*	2614	14.84
2006*	2590	14.87
2007*	2944	16.92
2008*	3002	17.05
2009	2654	15.13

\*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 - 31/12/09



**Monthly rate and 12 month moving average rate of *C. difficile* per 1000 admissions in inpatients aged >65 in Wales, 01/01/05 - 31/12/09**

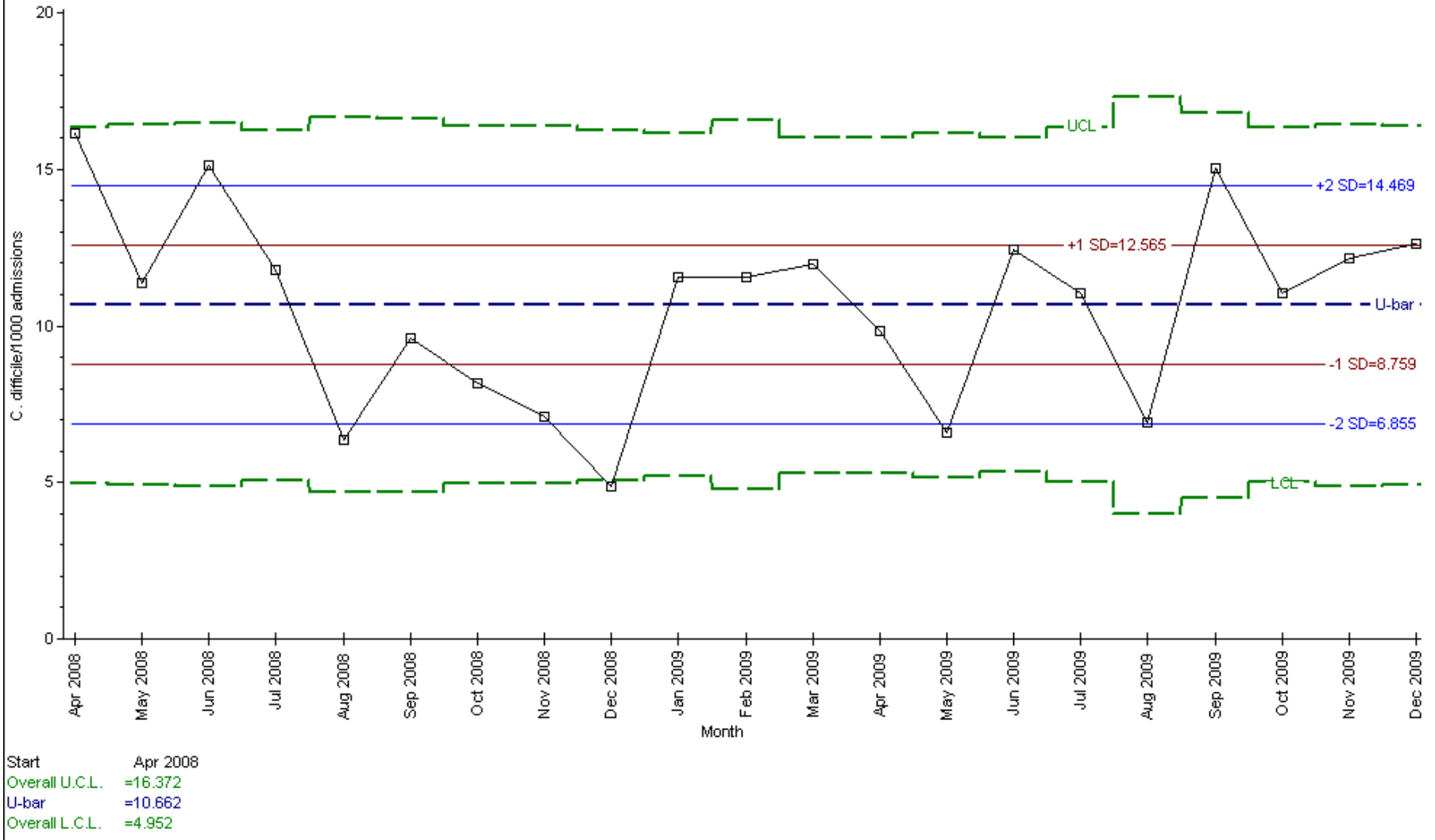


**ABMU Health Board**  
**Monthly Trend Data**  
**01/01/09 - 31/12/09**

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

<b>Year</b>	<b>Month</b>	<b>No. <i>C. difficile</i></b>	<b>No. Admissions</b>	<b>Rate/1000 Admissions</b>
2009	1	37	3197	11.57
	2	32	2766	11.57
	3	40	3337	11.99
	4	33	3352	9.84
	5	21	3178	6.61
	6	42	3382	12.42
	7	33	2982	11.07
	8	15	2168	6.92
	9	38	2531	15.01
	10	33	2983	11.06
	11	35	2875	12.17
	12	37	2928	12.64

Monthly rates of Clostridium difficile in inpatients aged >65 per 1000 admissions in >65s in ABMU Health Board, 01/04/08 - 31/12/09



**Morrison Hospital**  
**Monthly Trend Data**  
**01/01/09 - 31/12/09**  
**&**  
**Annual Trend Data**  
**2005 - 2009**



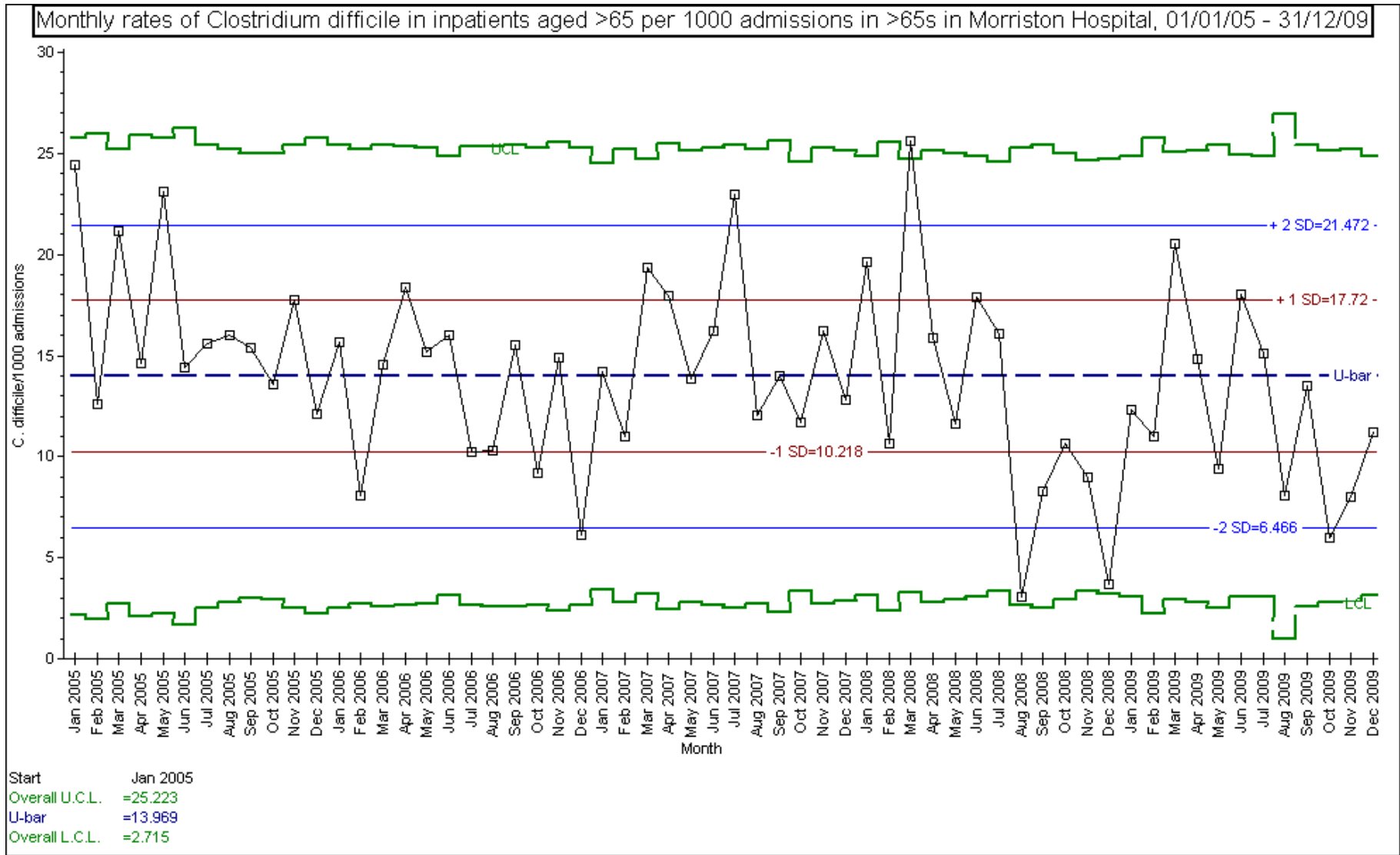
**Number of *C. difficile* reports in hospital inpatients aged over 65 and rate per 1000 hospital admissions by month in Morriston Hospital**

<b>Year</b>	<b>Month</b>	<b>No. <i>C. difficile</i></b>	<b>No. Admissions</b>	<b>Rate/1000 Admissions</b>
2009	1	13	1058	12.29
	2	10	910	10.99
	3	21	1024	20.51
	4	15	1010	14.85
	5	9	959	9.38
	6	19	1054	18.03
	7	16	1059	15.11
	8	6	745	8.05
	9	13	964	13.49
	10	6	1007	5.96
	11	8	1003	7.98
	12	12	1068	11.24

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

<b>Year</b>	<b>No. <i>C. difficile</i></b>	<b>Rate/1000 Admissions</b>
2005*	189	16.73
2006*	151	12.84
2007*	184	15.15
2008*	160	12.81
2009	148	12.48

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



**Neath Port Talbot Hospital**

**Monthly Trend Data  
01/01/09 - 31/12/09  
&  
Annual Trend Data  
2005 - 2009**

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

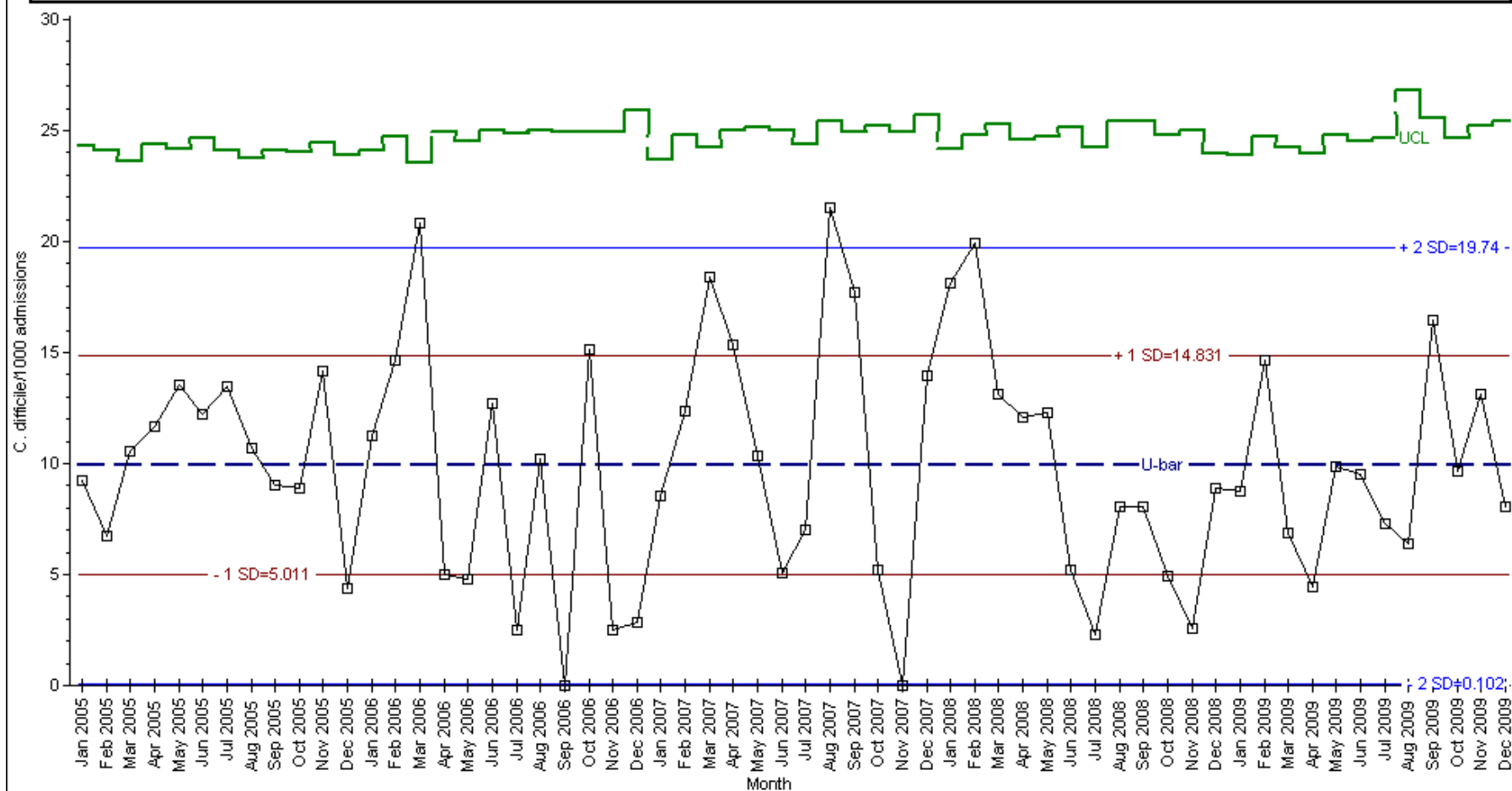
<b>Year</b>	<b>Month</b>	<b>No. <i>C. difficile</i></b>	<b>No. Admissions</b>	<b>Rate/1000 Admissions</b>
2009	1	4	456	8.77
	2	6	409	14.67
	3	3	437	6.86
	4	2	453	4.42
	5	4	405	9.88
	6	4	419	9.55
	7	3	411	7.30
	8	2	313	6.39
	9	6	364	16.48
	10	4	413	9.69
	11	5	381	13.12
	12	3	371	8.09

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

<b>Year</b>	<b>No. <i>C. difficile</i></b>	<b>Rate/1000 Admissions</b>
2005*	55	10.33
2006*	43	8.82
2007*	54	11.22
2008*	47	9.68
2009	46	9.52

\*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 >65 per 1000 admissions in >65s in Neath Port Talbot Hospital, 01/01/05 - 31/12/09



Start Jan 2005  
 Overall U.C.L. =24.650  
 U-bar =9.921  
 Overall L.C.L. =N/A

**Princess of Wales Hospital**

**Monthly Trend Data  
01/01/09 - 31/12/09  
&  
Annual Trend Data  
2005 - 2009**

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

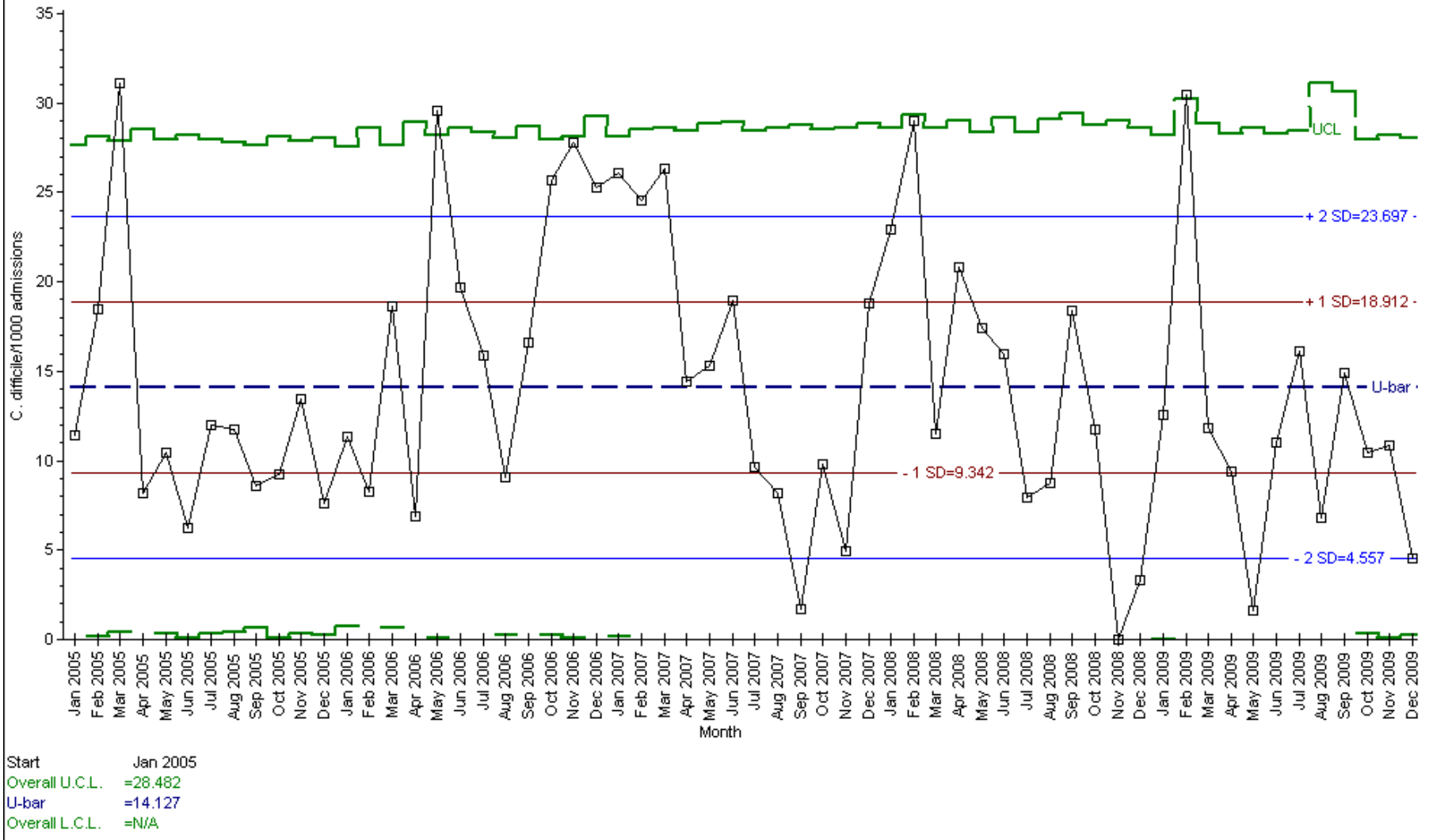
<b>Year</b>	<b>Month</b>	<b>No. <i>C. difficile</i></b>	<b>No. Admissions</b>	<b>Rate/1000 Admissions</b>
2009	1	8	639	12.52
	2	15	493	30.43
	3	7	590	11.86
	4	6	637	9.42
	5	1	607	1.65
	6	7	633	11.06
	7	10	619	16.16
	8	3	442	6.79
	9	7	469	14.93
	10	7	668	10.48
	11	7	646	10.84
	12	3	661	4.54

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

<b>Year</b>	<b>No. <i>C. difficile</i></b>	<b>Rate/1000 Admissions</b>
2005*	99	12.43
2006*	136	17.89
2007*	109	14.95
2008*	98	13.88
2009	81	11.40

\*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 >65 per 1000 admissions in >65s in Princess of Wales Hospital, 01/01/05 - 31/12/09





**Singleton Hospital**  
**Monthly Trend Data**  
**01/01/09 - 31/12/09**  
**&**  
**Annual Trend Data**  
**2005 - 2009**

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

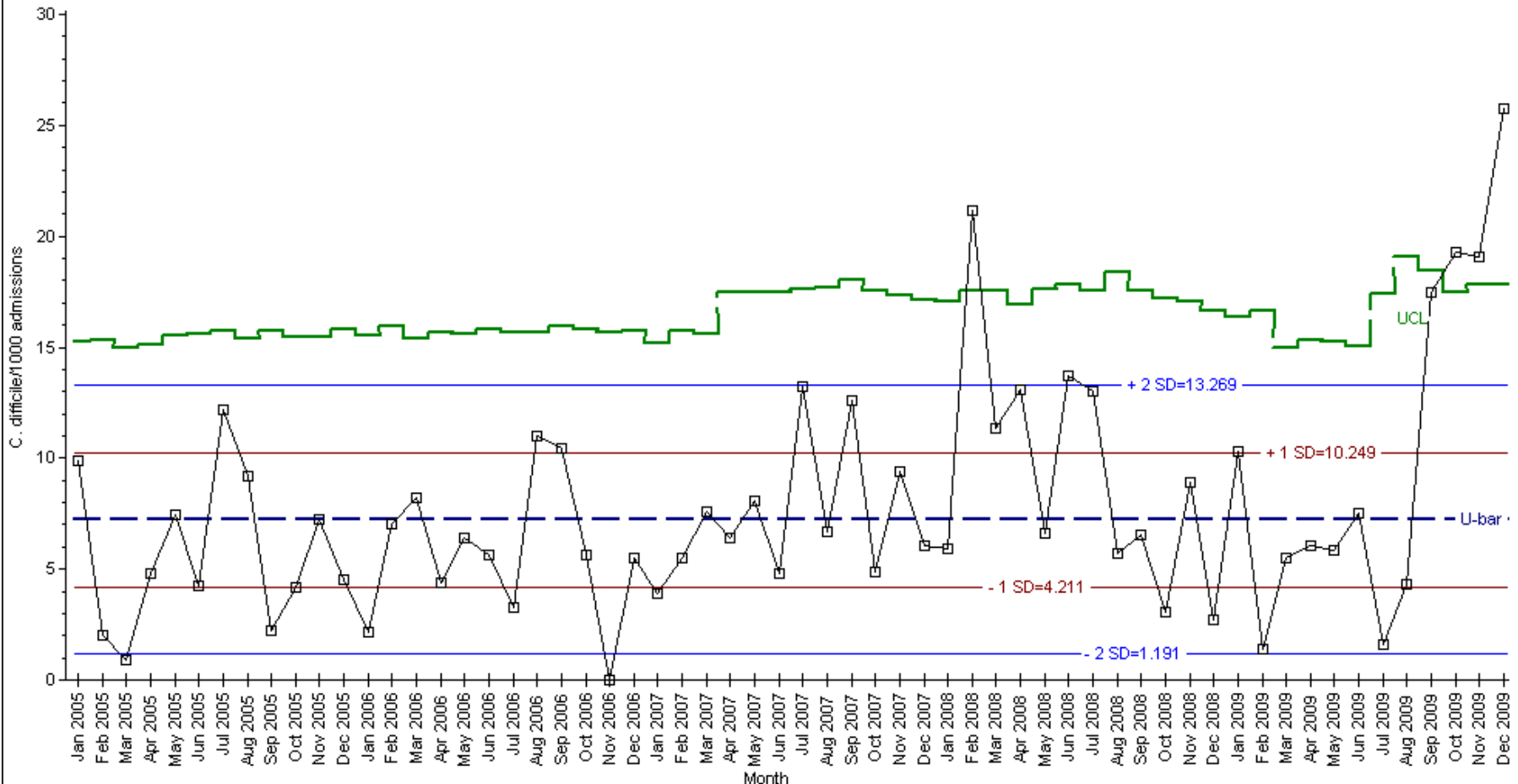
<b>Year</b>	<b>Month</b>	<b>No. <i>C. difficile</i></b>	<b>No. Admissions</b>	<b>Rate/1000 Admissions</b>
2009	1	8	778	10.28
	2	1	733	1.36
	3	6	1087	5.52
	4	6	996	6.02
	5	6	1021	5.88
	6	8	1064	7.52
	7	1	633	1.58
	8	2	462	4.33
	9	9	516	17.44
	10	12	622	19.29
	11	11	577	19.06
	12	15	582	25.77

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

<b>Year</b>	<b>No. <i>C. difficile</i></b>	<b>Rate/1000 Admissions</b>
<b>2005*</b>	66	5.68
<b>2006*</b>	63	5.78
<b>2007*</b>	60	7.15
<b>2008*</b>	70	9.22
<b>2009</b>	85	9.37

\*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 >65 per 1000 admissions in >65s in Singleton Hospital, 01/01/05 - 31/12/09



Start Jan 2005  
 Overall U.C.L. =16.288  
 U-bar =7.230  
 Overall L.C.L. =N/A

**Numbers of *Clostridium difficile* in hospital inpatients aged 2 and over in Wales, 01/01/09 – 31/12/09**

<b>Health Board</b>	<b>Numbers of <i>C. difficile</i></b>		
	<b>Age 2 - 65</b>	<b>Age &gt;65</b>	<b>Total</b>
ABM University Health Board	115	396	511
<b>Total</b>	<b>532</b>	<b>2654</b>	<b>3186</b>