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Wales

# ***CLOSTRIDIUM DIFFICILE***

## **MANDATORY SURVEILLANCE REPORT**

01/10/10 – 30/09/11

**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 Government in January 2005. This is the 14<sup>th</sup> report of the surveillance scheme and covers the period 01/10/2010 to 30/09/2011. The report contains:

1. Tabulated numbers of *C. difficile* and rates per 1000 admissions by Health Board in Wales for the period 01/10/2010 to 30/09/2011.
2. Tabulated numbers of *C. difficile* and rates per 1000 admissions by patient age and gender for the period 01/10/2010 to 30/09/2011.
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 01/10/2010 to 30/09/2011.
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 01/10/2010 to 30/09/2011.
5. 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 01/01/2005 to 30/09/2011, although some of the Health Boards SPC are only provided from 01/04/2008.
6. Numbers of *C. difficile* in inpatients aged 2 to 65 by Health Board in Wales for the period 01/10/2010 to 30/09/2011.

The recent reductions in *C. difficile* in Wales have resulted in the control limits being recalculated for the SPC charts. The new control limits have been put in place for Wales as a whole from September 2010 but may vary for individual Health Boards and hospitals depending on when the reductions started. Because of the recalculated control limits it is no longer possible to provide the 1 and 2 SD lines on the control charts.

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 01/10/2010 to 30/09/2011 was 8.86, ranging from 2.79 to 13.44. This compares with an all Wales rate of 14.23 for the equivalent period last year.

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 (37.89) and geriatric medicine (23.77).

In the period 01/10/2010 to 30/09/2011, 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 is available on the HPA website:

<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/ClostridiumDifficile/>

Data from the Scottish *C. difficile* surveillance scheme is available on the Health Protection Scotland website:

<http://www.hps.scot.nhs.uk/haic/sshaip/clostridiumdifficile.aspx?subjectid=79>

Data from the Northern Ireland *C. difficile* surveillance scheme has is available on the Public Health Agency Northern Ireland website

<http://www.publichealth.hscni.net/directorate-public-health/health-protection/healthcare-associated-infections>

This report will also be distributed to the Welsh 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 01/10/2010 to 30/09/2011
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 NHS Wales Informatics Service database, PEDW, and is specific to the time period of the report.
6. Rates by Health Board include numerator and denominator data from all hospitals in the Health Board.
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 Health Boards are presented in the form of statistical process control charts. SPC charts assume that rates within a Health Board/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 Health Board/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 Health Board/hospital; the *C. difficile* was not necessarily acquired in that Health Board/hospital.
11. Health Boards/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: 01/10/2010 - 30/09/2011**

**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                  | 249                        | 34856             | 7.14                        |
| Aneurin Bevan         | 378                        | 32762             | 11.54                       |
| Betsi Cadwaladr       | 509                        | 40969             | 12.42                       |
| Cardiff & Vale        | 221                        | 23158             | 9.54                        |
| Cwm Taf               | 61                         | 19760             | 3.09                        |
| Hywel Dda             | 139                        | 23366             | 5.95                        |
| Powys                 | 5                          | 1789              | 2.79                        |
| Velindre NHS Trust    | 12                         | 893               | 13.44                       |
|                       |                            |                   |                             |
| <b>All Wales Rate</b> | 1574                       | 177553            | 8.86                        |
|                       |                            |                   |                             |
| All Wales min         | 5                          | 893               | 2.79                        |
| All Wales max         | 509                        | 40969             | 13.44                       |
| All Wales average     | 196.75                     | 22194             | 8.24                        |
| All Wales median      | 180                        | 23262             | 8.34                        |

**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            | 337                        | 67081             | 5.02                        |
| 76-85            | 715                        | 71067             | 10.06                       |
| 86-95            | 483                        | 36623             | 13.19                       |
| 96+              | 39                         | 2782              | 14.02                       |

**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                | 907                        | 95185             | 9.53                        |
| Male                  | 666                        | 82366             | 8.09                        |

**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        | 603                        | 75970             | 7.94                        |
| Geriatric Medicine      | 213                        | 8962              | 23.77                       |
| General Surgery         | 132                        | 22631             | 5.83                        |
| Trauma & Orthopaedic    | 64                         | 18850             | 3.40                        |
| Nephrology              | 61                         | 1610              | 37.89                       |
| Cardiology              | 34                         | 8506              | 4.00                        |
| GP Other Than Maternity | 31                         | 4239              | 7.31                        |
| Rehabilitation          | 30                         | 3965              | 7.57                        |
| Urology                 | 29                         | 7856              | 3.69                        |
| A & E/Admissions        | 23                         | 2720              | 8.46                        |
| Others                  | 110                        |                   |                             |
| Not Known               | 144                        |                   |                             |

NB Admissions data for September 2010 have been used as a proxy for September 2011 in all the tables.

## Trend Data



**All Wales**

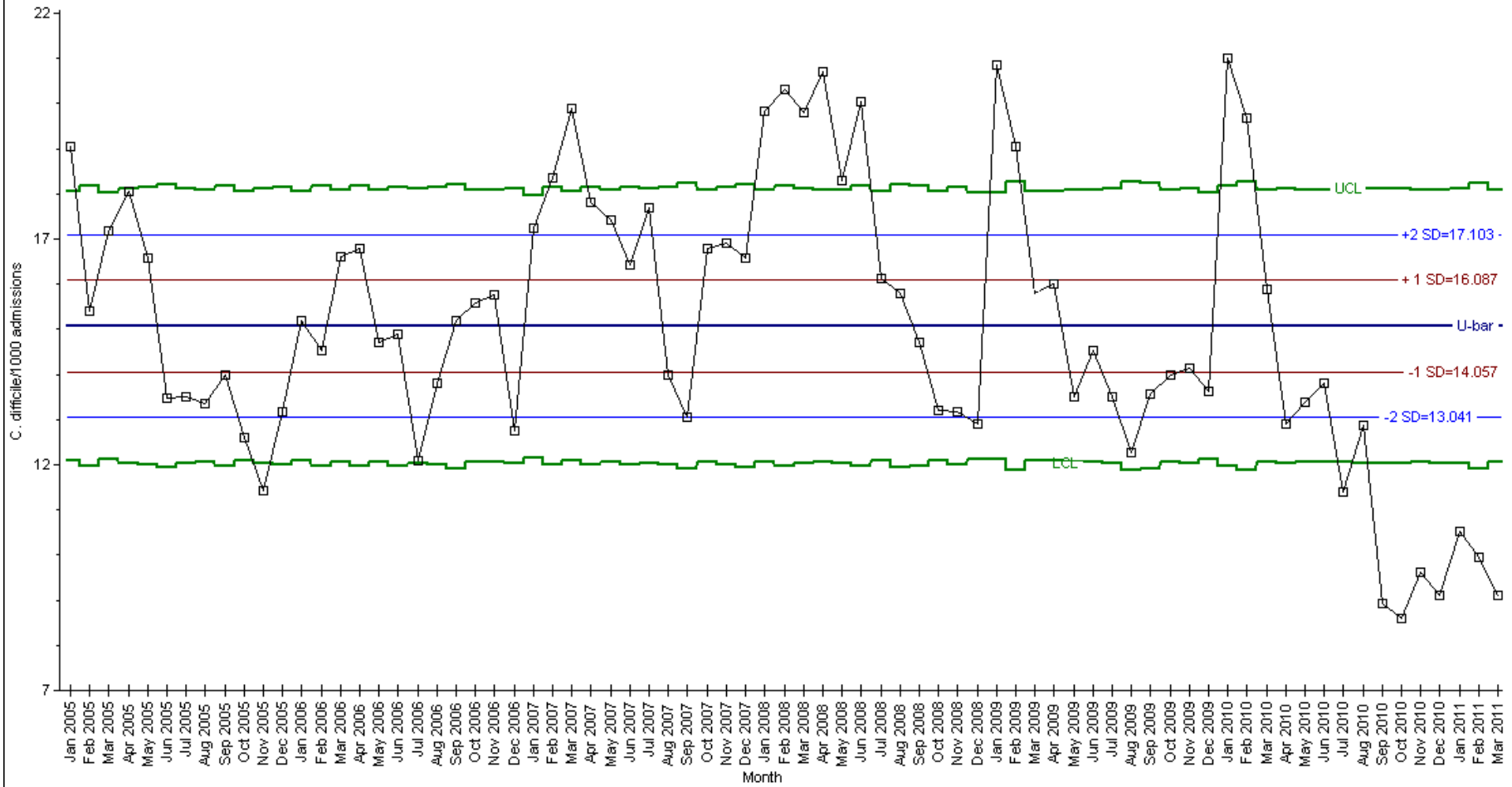
**Monthly Trend Data  
01/10/10 - 30/09/11**

**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> |
|-------------|--------------|--------------------------------|-----------------------|-----------------------------|
| 2010        | 10           | 126                            | 14673                 | 8.59                        |
|             | 11           | 144                            | 14971                 | 9.62                        |
|             | 12           | 135                            | 14800                 | 9.12                        |
| 2011        | 1            | 153                            | 14652                 | 10.44                       |
|             | 2            | 135                            | 13748                 | 9.82                        |
|             | 3            | 137                            | 15729                 | 8.71                        |
|             | 4            | 136                            | 14396                 | 9.45                        |
|             | 5            | 131                            | 15065                 | 8.70                        |
|             | 6            | 172                            | 15235                 | 11.29                       |
|             | 7            | 124                            | 15193                 | 8.16                        |
|             | 8            | 103                            | 14540                 | 7.08                        |
|             | 9*           | 78                             | 14551                 | 5.36                        |

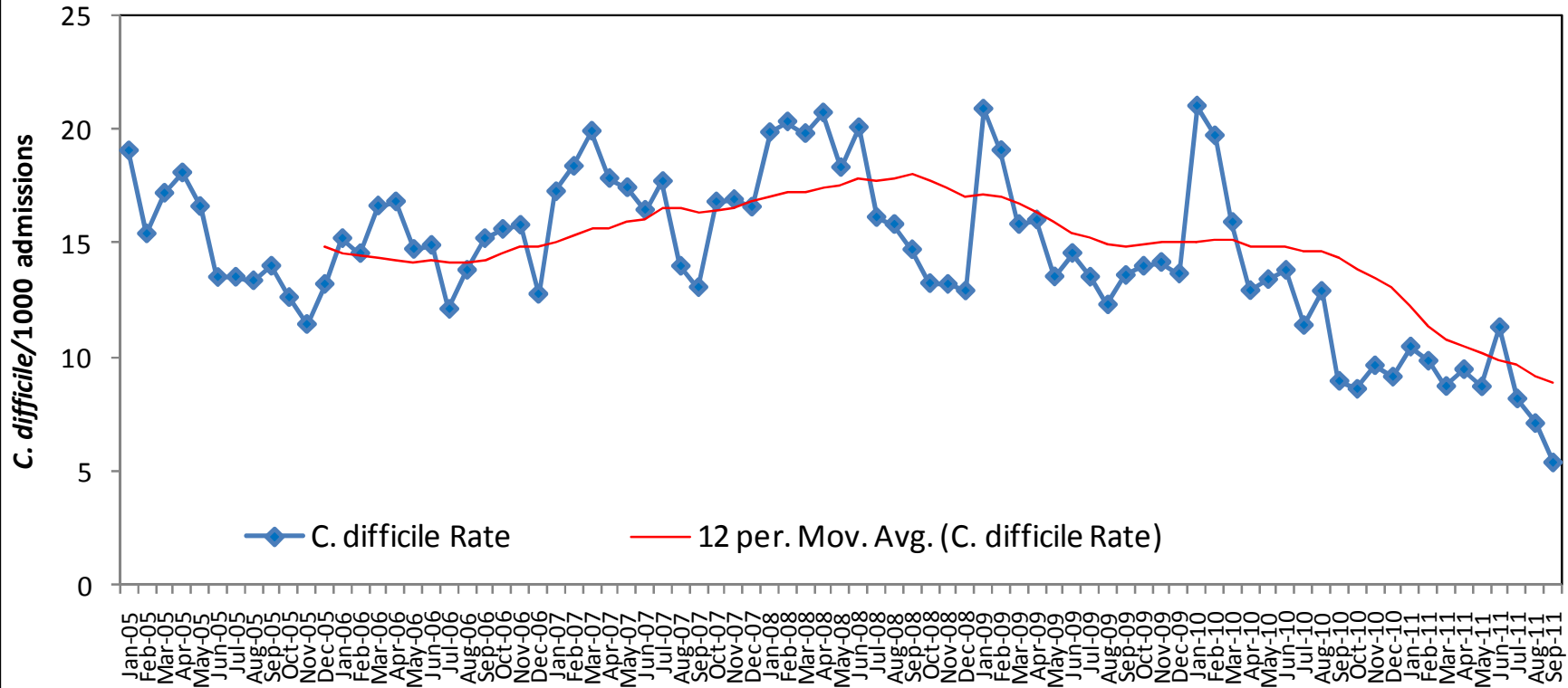
\*Sep 2010 admissions data has been used

Monthly rates of Clostridium difficile in inpatients aged over 65 per 1000 admissions in over 65s in Wales, 01/01/05 - 31/03/11



Start Jan 2005  
 Overall U.C.L. =18.118  
 U-bar =15.072  
 Overall L.C.L. =12.026

Monthly rate and 12 month moving average rate of *C. difficile* per 1000 admissions in inpatients aged >65 in Wales, 01/01/05 - 30/09/11



**ABMU Health Board**

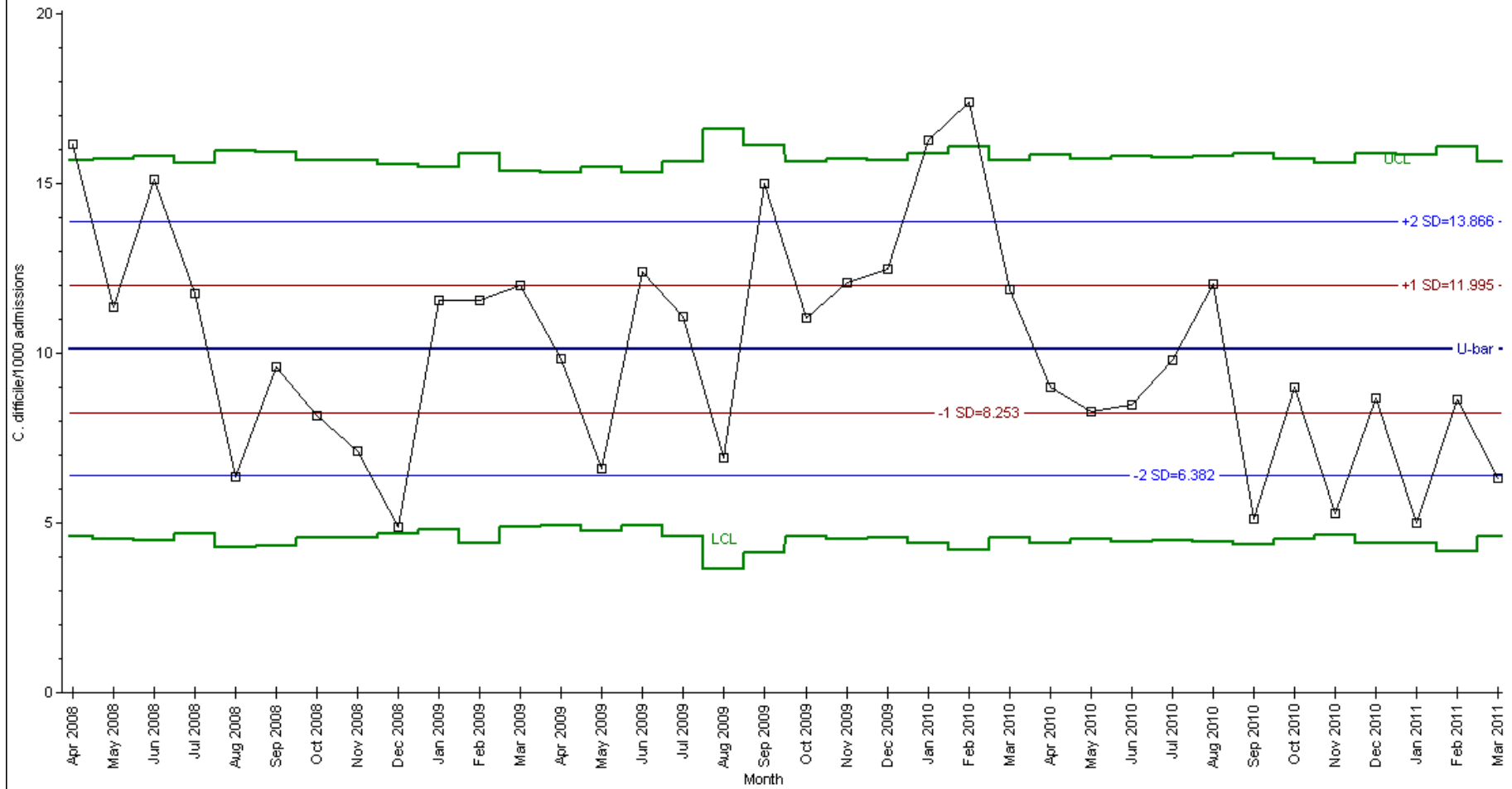
**Monthly Trend Data  
01/10/10 - 30/09/11**

**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> |
|-------------|--------------|--------------------------------|-----------------------|-----------------------------|
| 2010        | 10           | 26                             | 2891                  | 8.99                        |
|             | 11           | 16                             | 3025                  | 5.29                        |
|             | 12           | 24                             | 2763                  | 8.69                        |
| 2011        | 1            | 14                             | 2816                  | 4.97                        |
|             | 2            | 22                             | 2614                  | 8.42                        |
|             | 3            | 19                             | 3113                  | 6.10                        |
|             | 4            | 22                             | 2850                  | 7.72                        |
|             | 5            | 21                             | 3055                  | 6.87                        |
|             | 6            | 33                             | 3048                  | 10.83                       |
|             | 7            | 18                             | 3021                  | 5.96                        |
|             | 8            | 17                             | 2928                  | 5.81                        |
|             | 9*           | 17                             | 2732                  | 6.22                        |

\*Sep 2010 admissions data has been used

Monthly rates of Clostridium difficile in inpatients aged >65 per 1000 admissions in >65s in ABMU Health Board, 01/04/08 - 31/03/11



Start Apr 2008  
 Overall U.C.L. =15.737  
 U-bar =10.124  
 Overall L.C.L. =4.511

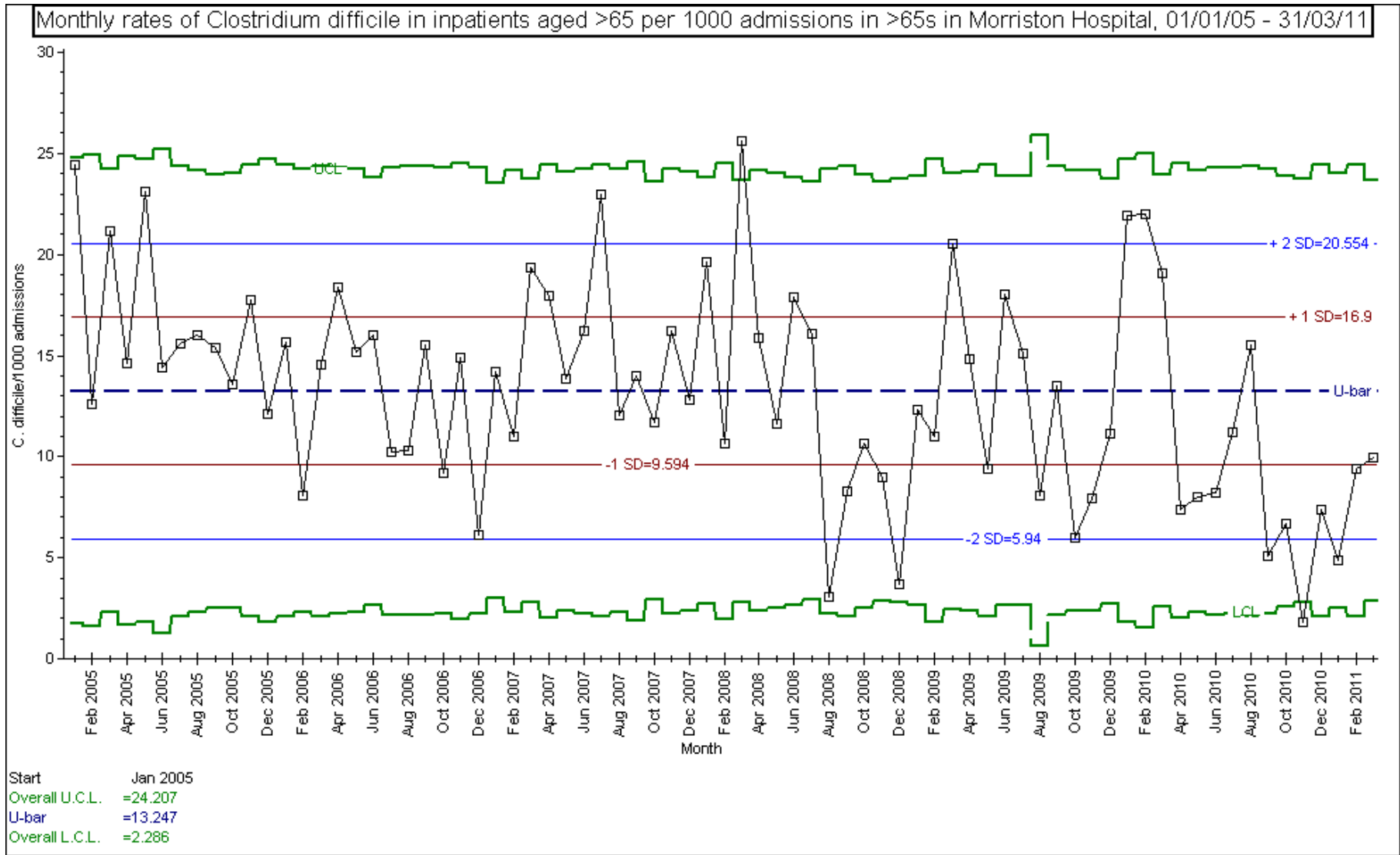
**Morrison Hospital**  
**Monthly Trend Data**  
**01/10/10 - 30/09/11**



**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> |
|-------------|--------------|--------------------------------|-----------------------|-----------------------------|
| 2010        | 10           | 7                              | 1050                  | 6.67                        |
|             | 11           | 2                              | 1089                  | 1.84                        |
|             | 12           | 7                              | 953                   | 7.35                        |
| 2011        | 1            | 5                              | 1033                  | 4.84                        |
|             | 2            | 9                              | 961                   | 9.37                        |
|             | 3            | 11                             | 1125                  | 9.78                        |
|             | 4            | 8                              | 1038                  | 7.71                        |
|             | 5            | 8                              | 1195                  | 6.69                        |
|             | 6            | 18                             | 1162                  | 15.49                       |
|             | 7            | 9                              | 1196                  | 7.53                        |
|             | 8            | 5                              | 1190                  | 4.20                        |
|             | 9*           | 11                             | 986                   | 11.16                       |

\*Sep 2010 admissions data has been used



**Neath Port Talbot Hospital**

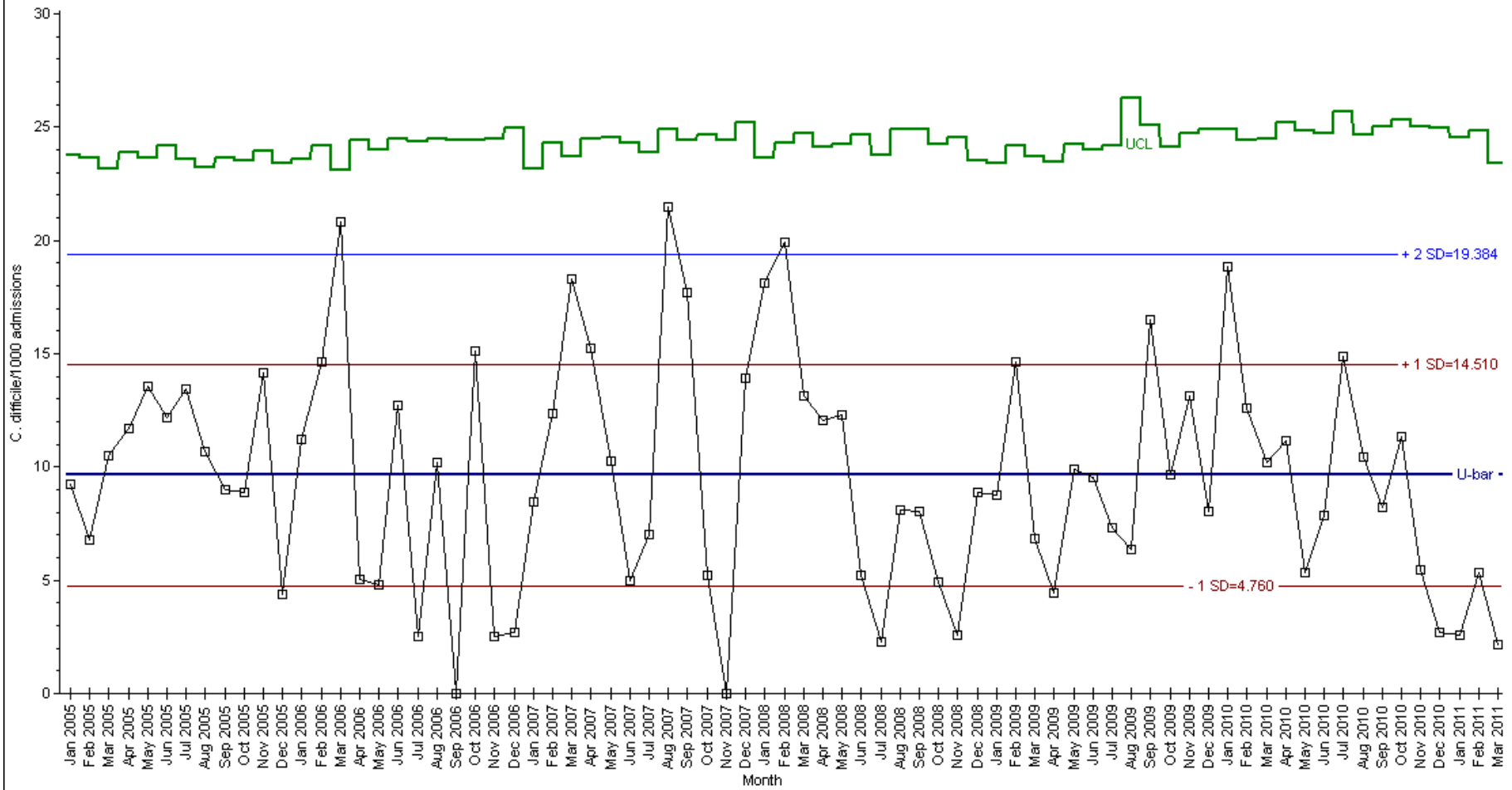
**Monthly Trend Data  
01/10/10 - 30/09/11**

**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> |
|-------------|--------------|--------------------------------|-----------------------|-----------------------------|
| 2010        | 10           | 4                              | 353                   | 11.33                       |
|             | 11           | 2                              | 367                   | 5.45                        |
|             | 12           | 1                              | 369                   | 2.71                        |
| 2011        | 1            | 1                              | 394                   | 2.54                        |
|             | 2            | 2                              | 375                   | 5.33                        |
|             | 3            | 1                              | 462                   | 2.16                        |
|             | 4            | 1                              | 348                   | 2.87                        |
|             | 5            | 1                              | 370                   | 2.70                        |
|             | 6            | 5                              | 395                   | 12.66                       |
|             | 7            | 1                              | 392                   | 2.55                        |
|             | 8            | 3                              | 382                   | 7.85                        |
|             | 9*           | 1                              | 365                   | 2.74                        |

\*Sep 2010 admissions data has been used

Monthly rates of Clostridium difficile in inpatients aged >65 per 1000 admissions in >65s in Neath Port Talbot Hospital, 01/01/05 - 31/03/11



Start Jan 2005  
 Overall U.C.L. =24.259  
 U-bar =9.635  
 Overall L.C.L. =n/a

**Princess of Wales Hospital**

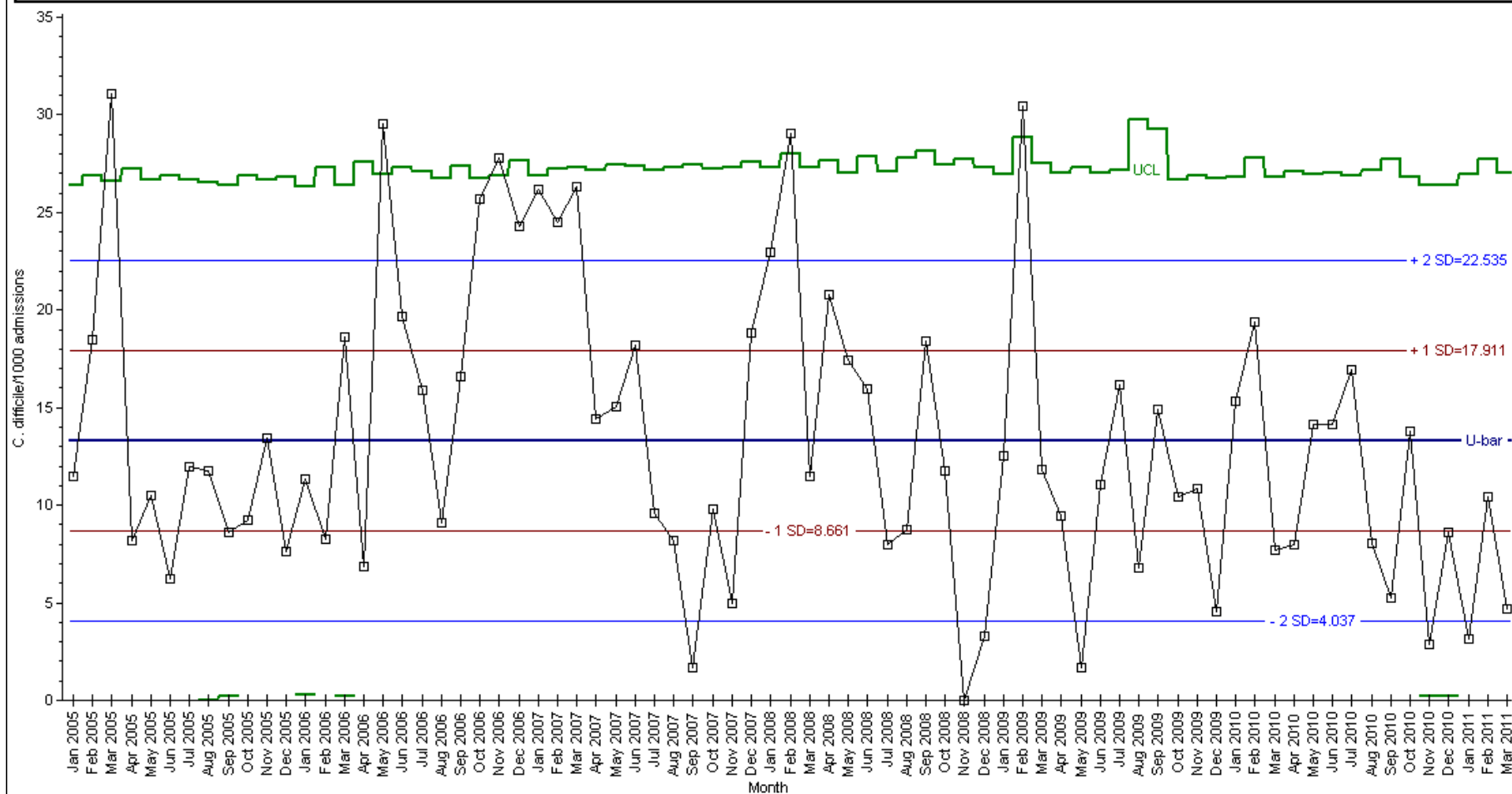
**Monthly Trend Data  
01/10/10 - 30/09/11**

**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> |
|-------------|--------------|--------------------------------|-----------------------|-----------------------------|
| 2010        | 10           | 9                              | 652                   | 13.80                       |
|             | 11           | 2                              | 698                   | 2.87                        |
|             | 12           | 6                              | 696                   | 8.62                        |
| 2011        | 1            | 2                              | 642                   | 3.12                        |
|             | 2            | 6                              | 576                   | 10.42                       |
|             | 3            | 3                              | 637                   | 4.71                        |
|             | 4            | 9                              | 646                   | 13.93                       |
|             | 5            | 8                              | 707                   | 11.32                       |
|             | 6            | 5                              | 701                   | 7.13                        |
|             | 7            | 5                              | 679                   | 7.36                        |
|             | 8            | 6                              | 653                   | 9.19                        |
|             | 9*           | 3                              | 574                   | 5.23                        |

\*Sep 2010 admissions data has been used

Monthly rates of Clostridium difficile in inpatients aged >65 per 1000 admissions in >65s in Princess of Wales Hospital, 01/01/05 - 31/03/11



Start Jan 2005  
 Overall U.C.L. =27.160  
 U-bar =13.286  
 Overall L.C.L. =n/a

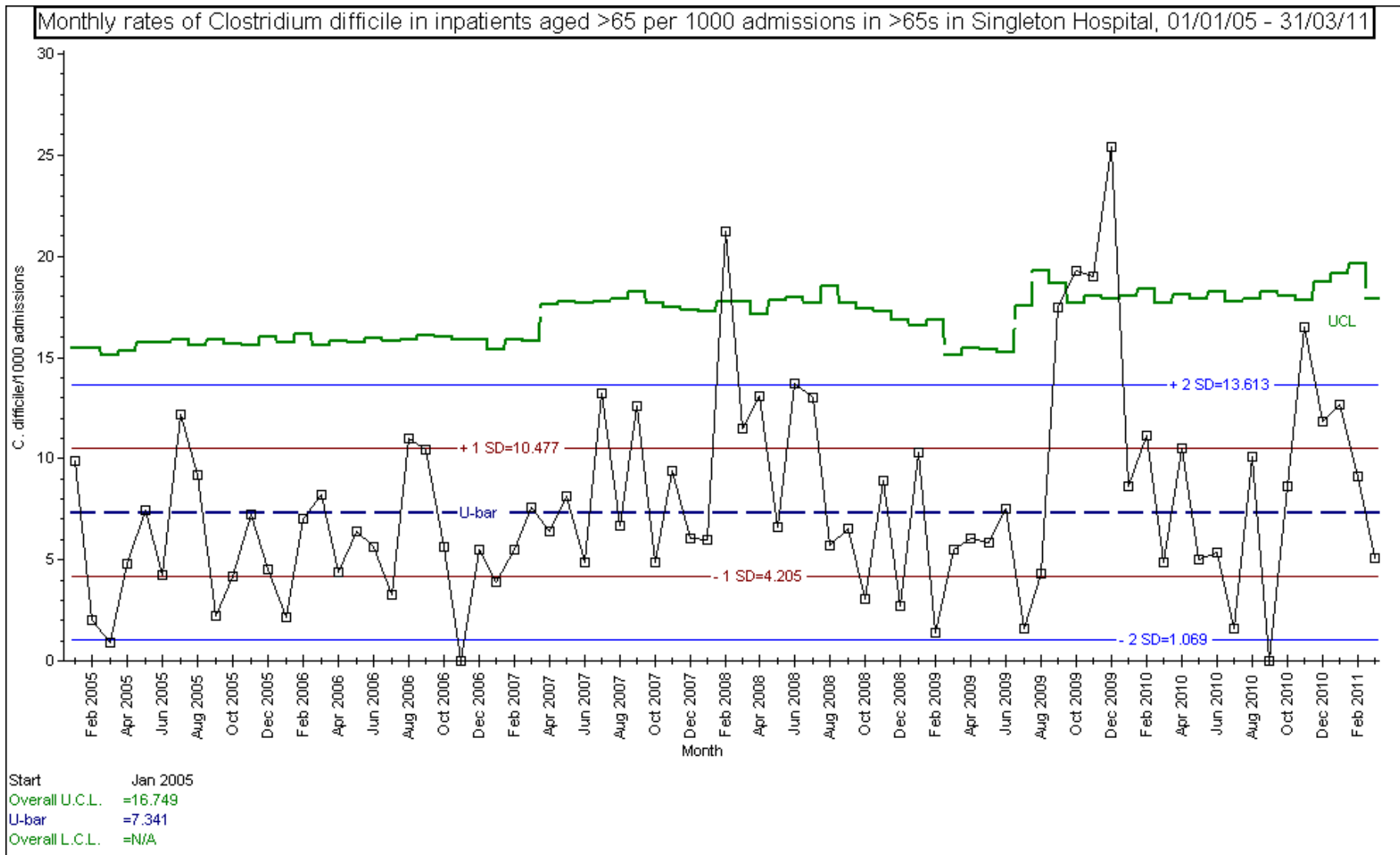


**Singleton Hospital**  
**Monthly Trend Data**  
**01/10/10 - 30/09/11**

**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> |
|-------------|--------------|--------------------------------|-----------------------|-----------------------------|
| 2010        | 10           | 5                              | 578                   | 8.65                        |
|             | 11           | 10                             | 605                   | 16.53                       |
|             | 12           | 6                              | 507                   | 11.83                       |
| 2011        | 1            | 6                              | 474                   | 12.66                       |
|             | 2            | 4                              | 447                   | 8.95                        |
|             | 3            | 3                              | 586                   | 5.12                        |
|             | 4            | 3                              | 560                   | 5.36                        |
|             | 5            | 4                              | 542                   | 7.38                        |
|             | 6            | 5                              | 522                   | 9.58                        |
|             | 7            | 3                              | 542                   | 5.54                        |
|             | 8            | 2                              | 492                   | 4.07                        |
|             | 9*           | 1                              | 559                   | 1.79                        |

\*Sep 2010 admissions data has been used



**Numbers of *Clostridium difficile* in hospital inpatients aged 2 and over in Wales, 01/10/10 – 30/09/11**

| <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              | 64                                    | 249               | 313          |
| Aneurin Bevan Health Board               | 55                                    | 378               | 433          |
| Betsi Cadwaladr University Health Board  | 90                                    | 509               | 599          |
| Cardiff and Vale University Health Board | 73                                    | 221               | 294          |
| Cwm Taf Health Board                     | 14                                    | 61                | 75           |
| Hywel Dda Health Board                   | 16                                    | 139               | 155          |
| Powys Local Health Board                 | 0                                     | 5                 | 5            |
| Velindre NHS Trust                       | 14                                    | 12                | 26           |
|  |                                       |                   |              |
| <b>Total</b>                             | <b>326</b>                            | <b>1574</b>       | <b>1900</b>  |