

**NHS Board Meeting**  
**Tuesday, 24 February 2009**



**Medical Director**

**Board Paper No. 09/04**

## **Healthcare Associated Infection**

### **Recommendation:**

The NHS Board is asked to note the first of 2 monthly reports on HAIs within NHSGGC

### **INTRODUCTION**

The attached HAI report is the first of the two monthly reports to NHS Board as required by the National HAI Task Force Action Plan. The report presents data on the performance of NHSGGC on a range of key HAI indicators at National and individual hospital site level.

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## NHS Greater Glasgow & Clyde HAI MONITORING REPORT FEBRUARY 2009

This is the first of the two-monthly HAI Monitoring Reports for submission to the NHS Board as required by the National HAI Action Plan.

The Report outlines the Board's position and performance in relation to:

- *S. aureus* bacteraemias (HEAT Target)
- *C. difficile*
- Surgical Site Infections
- Hand hygiene compliance
- Monitoring of cleaning services

The data are presented at both national and hospital level. In summary:

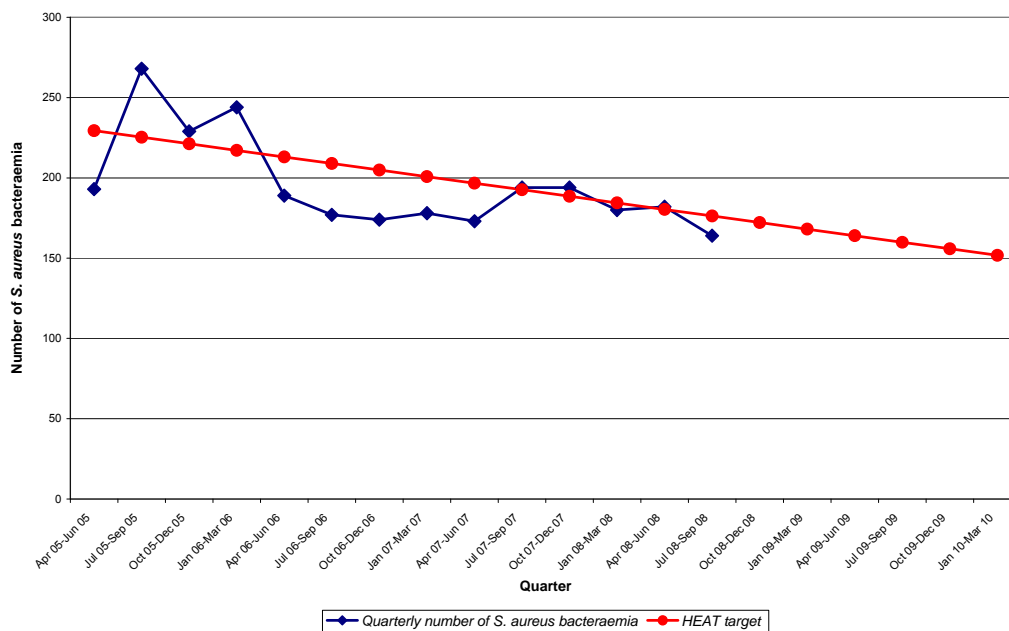
- If Current trends are maintained NHSGGC will achieve the target of a 35% reduction in *S. aureus* bacteraemia by 2010.
- The National Report published on 14 January 2009 shows that NHSGGC is below the national mean and that there has been a reduction of *C. difficile* in 2007/2008. The annual overall rate for NHS Scotland per 1000 occupied bed days is 1.29 the rate for NHSGGC is below this and is reported as 1.08 for the same time period.
- The SSI rates in NHSGGC are below the national average for all procedures reported apart from hip arthroplasty.
- NHSGGC has demonstrated a steady rise in compliance during the national audit periods from a 62% baseline in February 2007 to achieve the 90% target in September 2008, and 92% in January 2009.
- All areas within NHSGGC scored **green (>90%)** in the most recent report on the National Cleaning Specification.

Dr Brian Cowan  
Medical Director, NHSGGC

## Heat Target 1 – To reduce MRSA / MSSA bacteraemias by 35% by 2010

*S. aureus* is a type of bacteria that is present in the nose of up to 30% of the healthy population. Although normally harmless, *S. aureus* can be a major cause of serious infection such as bacteraemia when the bacteria invades the bloodstream. Both meticillin sensitive and meticillin resistant *S. aureus* (MSSA and MRSA) are present in UK hospitals. NHSGGC have been challenged with reducing this type of infection by 35% by 2010. NHSGGC is on target to achieve this reduction and the chart below demonstrates our progress against the target.

Run chart of quarterly number of *S. aureus* bacteraemia in NHS Greater Glasgow and Clyde, 1 April 2005 to 30 September 2008 with HEAT target trajectory to 31 March 2010.



### Key Messages

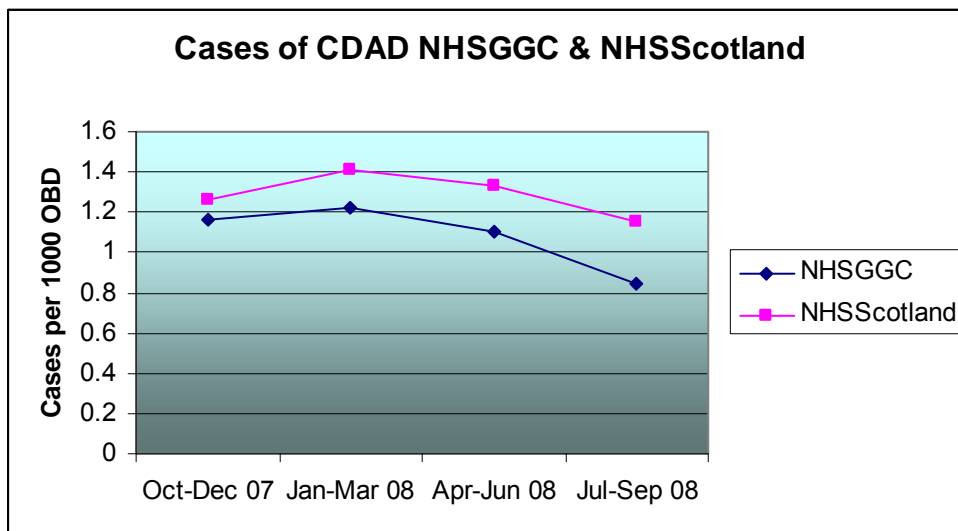
- If Current trends are maintained NHSGGC is on target to achieve the 35% reduction in *S. aureus* bacteraemia by 2010. This replicates the national trend for NHS Scotland.
- All Statistical Process Control Charts for MRSA (all types of MRSA not only blood stream infections) at hospital level are within control limits. (Appendix 1)

## Cases of *C. diff* in NHSGGC & NHS Scotland per 1000 Occupied Bed Days

*Clostridium difficile* (*C. diff*) are bacteria that can cause an infection in the bowel which may result in diarrhoea. *C. diff* is present in the large intestine of a small proportion of health adults. Occasionally *C. diff* can develop into a more serious condition called pseudomembranous colitis.

*C. diff* mainly causes infection amongst hospital patients, especially the elderly who have received antibiotic therapy. It is anticipated the NHSScotland will be issued with a HEAT target in April 2009 which will require NHS Boards to reduce their incidence of *C. diff* by at least 30% by 2011 against a 2006/2007 baseline.

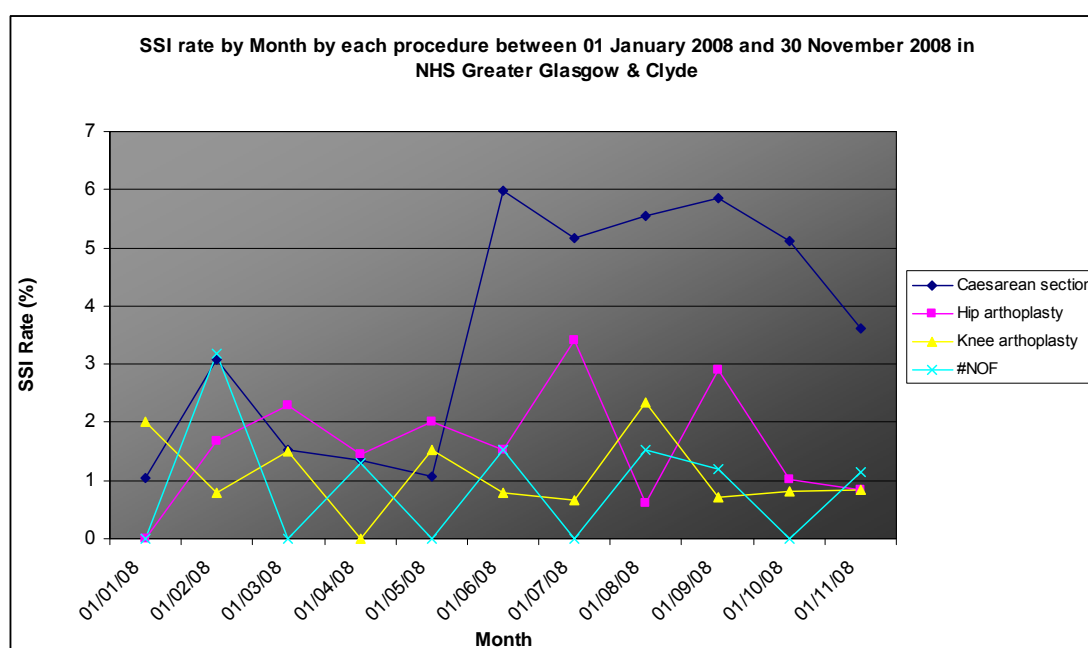
### NHSGGC per 1000 occupied bed days for 2007/08 compared to NHSScotland.



### Key Messages

- The National Report published on 14 January 2009 shows a reduction in the rate of *C. difficile* within NHSGGC and clearly places the Board below the national mean – in 2007/2008 the annual overall rate for NHS Scotland per 1000 occupied bed days is 1.29 the rate for NHSGGC is below this and is reported as 1.08 for the same time period.
- NHSGGC had decreasing rates of *C. diff* infection during the last three quarters of national reporting (Jan 2008-Sep 2008).
- All Statistical Process Control Charts for CDAD at hospital site level are within control limits. (Appendix 1)

## Surgical Site Infection Rates as per HDL(2006)38



- All SSI rates are within acceptable level. The increase for C-Section in June relates to a change in the data collection methodology. In June of 2008 the system for obtaining information from patients changed from a passive method (patients were required to send back completed questionnaires related to how their wound had healed) to an active system (surveillance nurses contacted all patient by telephone and asked them questions about how their wound had healed). Meaning that more cases were discovered.
- There was an increased rate of hip arthroplasty SSI within one hospital site between 1<sup>st</sup> February to 30<sup>th</sup> September 2008. This increase triggered a review by local clinical staff and the Infection Control Team and an action plan was developed to resolve any problems identified. As a result of this action, the SSI rate at this site is returning to expected levels.

Month	C-Section (n=4225)	Hip arthroplasty (n=2171)	Knee arthroplasty (n=1472)	#NOF (n=830)
Jan-08	1.05	0	2	0
Feb-08	3.09	1.68	0.78	3.17
Mar-08	1.54	2.29	1.5	0
Apr-08	1.36	1.44	0	1.3
May-08	1.07	2.01	1.53	0
Jun-08	5.98	1.53	0.78	1.52
Jul-08	5.16	3.41	0.65	0
Aug-08	5.56	0.62	2.33	1.52
Sep-08	5.85	2.9	0.71	1.2
Oct-08	5.11	1.03	0.81	0
Nov-08	3.62	0.83	0.83	1.14

## Key Message

- The SSI rates in NHSGGC are below the national average for all procedures reported apart from hip arthroplasty.

## NHSGGC compared to NHS Scotland 01 July 2008 to 30 September 2008

Category of procedure	NHSGG&C SSI rate (%)	National dataset SSI rate (%)
Caesarean section	5.52	7.56
Hip arthroplasty	2.44	1.65
Knee arthroplasty	1.18	1.32
Open reduction of long bone fracture	0.92	1.39

## Hand Hygiene

As per CNO(2007)1 NHS Boards to adopt a 'zero tolerance' approach to non-compliance with Hand Hygiene.

	1st Quarter National Audit Period 05-16 May 2008	2 <sup>nd</sup> Quarter National Audit Period 04-15 August 2008	3rd Quarter National Audit Period 03-14 November 2008
National overall compliance	88%	90%	93%
NHSGGC overall compliance	87%	90%	92%
National Nurse	92%	94%	95%
NHSGGC Nurse	92%	95%	98%
National Medic	75%	80%	84%
NHSGGC Medic	66%	70%	69%
National Ancillary/ others	85%	87%	92%
NHSGGC Ancillary/ others	90%	91%	92%
National AHP	89%	91%	93%
NHSGGC AHP	86%	86%	93%

### Key Messages

NHSGGC has demonstrated a steady rise in compliance from a 62% baseline in February 2007 to achievement of the 90% target in September 2008. This most recent National Report published in January 2009 demonstrated a further improvement to 92%.

In addition to the mandatory hand hygiene audits, NHSGGC are currently rolling out a training programme based on the Health Protection Scotland methodology and the Scottish Patient Safety Programmes Principles to all Senior Charge Nurses (SCN). This will allow SCNs to audit their own area with a standard template. SCNs have been clearly instructed that they have the authority to challenge any member of staff if they fail to comply with hand hygiene procedures including any members of medical staff. NHSGGC are reviewing disciplinary procedures to provide further guidance to staff about 'zero tolerance' and its implementation.

## National Cleaning Services Monitoring

As part of its work programme, the HAI Taskforce developed the 'NHS Scotland Code of Practice for the Local Management of Hygiene and HAI', and the 'NHS Scotland National Cleaning Services Specification'. These documents include guidance on cleanliness and hygiene, effectively setting minimum standards for the healthcare environment. They were issued to NHS Boards in May 2004. In addition, the HAI Taskforce commissioned Health Facilities Scotland (HFS) to develop a monitoring framework for the NHS Scotland National Cleaning Services Specification. This was developed in consultation with a range of stakeholders within NHS Scotland and was implemented in April 2006. The first quarterly report was published in August 2006.

Monitoring in this context is defined as the ongoing assessment of the outcome of cleaning processes to assess the extent to which cleaning procedures are being carried out correctly, to identify any remedial actions which are required and to provide an audit trail. An essential component of any monitoring framework is the fundamental principle of continuous improvement. Therefore the monitoring framework not only provides a reporting mechanism, but a rectification process that can be used locally to identify, prioritise and address issues of non-compliance.

Compliance is assessed within NHS Boards using a standardised monitoring template. There are two components to the monitoring:

- Audits carried out on a routine basis by domestic services managers;
- Audits carried out by peer review teams, incorporating a public involvement element.

Cleanliness is assessed using an observational process and according to the technical requirements set out in the NHS Scotland National Cleaning Services Specification. NHS Boards report their results to HFS on a monthly basis. From the data received the monitoring tool produces a score for all Boards and all A1 and A2 hospitals. This data is subsequently used by HFS to compile the quarterly report and fed back to Boards.

The scoring methodology is based on Red; Amber and Green (RAGs) scoring process as follows:

- $\geq 90\%$  equates to a green score
- $> 70\%$  but  $< 90\%$  equates to an amber score
- $< 70\%$  equates to a red score

All cleaning rectifications are required to be made within the specified time scales. Additionally, if an area scores amber or red, a RAGs form is completed giving details of why the area failed and how this will be rectified. A red area is re-monitored within 7 days and another score sheet completed. The amber area is re-monitored within 21 days and a further score sheet is completed. In both cases an action plan is produced to enable the rectification to be corrected.

**NHS GREATER GLASGOW AND CLYDE  
CLEANING SERVICES**

**NATIONAL MONITORING FRAMEWORK PERFORMANCE  
2008/2009**

All areas within NHSGGC scored **green (>90%)** in the most recent report on the National Cleaning Specification.

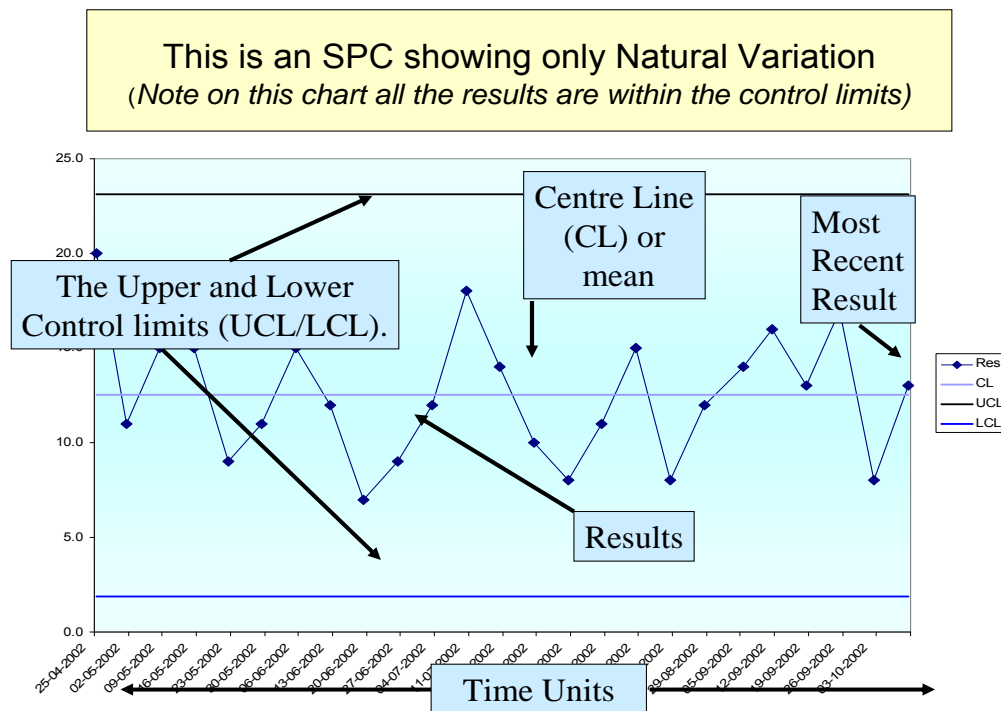
Hospital / Unit	Sector	April %	May %	June %	July %	Aug %	Sept %	Oct %	Nov %	Dec %	Jan %	Feb %	Mar %	Average 2007/2008
Vale of Leven/ Lomond/ Dumbarton/ Helensburgh	Clyde	96.9	96.5	96.5	96.3	96.9	96.5	96.6	94.9					96.4
Clyde Health Centres	Clyde	96.3	98.3	98.9	97.3	97.9	98.2	97.4	97.8					97.8
Inverclyde Royal	Clyde	95.9	97.4	96.7	97.9	98.6	97.2	96.3	97.0					97.1
Dykebar/ Johnstone/ Merchiston	Clyde	96.7	96.7	96.3	96.4	96.6	96.8	96.4	96.4					96.5
Royal Alexandra Hospital	Clyde	95.2	95.4	95.5	95.4	95.1	95.5	95.3	95.7					95.4
Dental Hospital/Dalian	West	95.8	95.6	96.6	96.6	97.0	97.2	96.0	97.2					96.5
Blawarthill/ Drumchapel	West	96.2	96.4	96.3	96.3	96.6	96.4	97.0	97.3					96.6
Glasgow Royal Infirmary	North East	94.4	94.7	95.3	94.8	95.1	96.0	96.4	95.9					95.3
Stobhill Hospital	North East	96.7	97.2	97.1	96.8	97.4	97.5	97.1	96.8					97.1
Mearnskirk Hospital	South	99.3	96.9	96.9	98.9	97.5	98.1	97.8	97.8					97.9
Langlands Unit	South	97.3	98.3	96.9	97.7	98.4	98.6	97.3	98.1					97.8
Mansion House Unit	South	97.6	96.5	97.1	96.6	97.5	98.2	97.1	97.9					97.3
Victoria Infirmary	South	97.1	96.6	97.1	97.0	97.3	97.6	97.6	97.4					97.2
Southern General Hospital	South	96.8	97.4	96.8	96.9	96.9	96.0	96.7	96.5					96.8
Yorkhill Hospitals	West	96.3	96.3	96.8	97.0	96.7	96.8	96.4	95.8					96.5

Western Infirmary	West	97.1	95.9	97.5	96.0	96.9	96.3	97.0	96.8						96.7
Gartnavel General Hospital	West	96.4	96.9	96.6	96.5	96.3	96.3	96.6	96.3						96.5
Lightburn Hospital	North East	95.6	92.4	94.1	95.2	95.1	95.1	95.0	93.1						94.5
PCD East	PCD	96.8	97.2	97.0	97.2	97.7	97.4	97.3	96.6						97.2
PCD North	PCD	97.5	96.6	97.0	97.2	96.8	96.6	97.1	93.2						96.5
PCD South	PCD	96.0	96.0	96.0	95.0	94.7	94.9	95.6	95.3						95.4
PCD West	PCD	96.3	96.2	96.4	96.2	95.9	97.0	97.0	96.8						96.5

Surveillance data can be used to detect any change in the incidence of disease, which in turn facilitates the early identification outbreaks of infection and leads to prompt initiation of preventive measures. It also allows local infection control teams to focus their interventions in areas where the greatest benefit to patients can be achieved.

Statistical Process Control Charts (SPCs) are the application of statistical theory to Quality Control. They show process data chronologically (per month in most cases). Some examples of where they have been used in healthcare include; queuing analysis of appointment access and delays and forecasting bed needs.

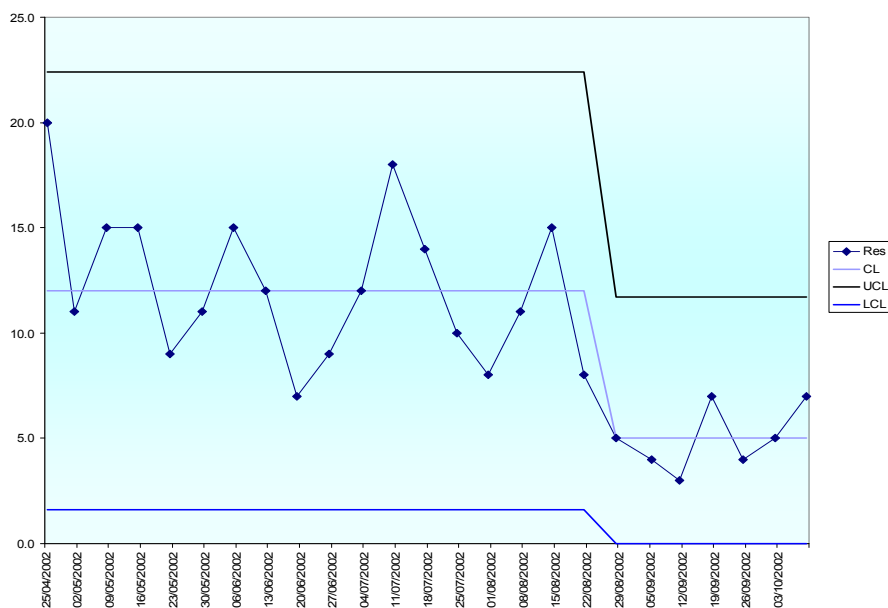
The most common use for SPCs in infection control practice is in relation to healthcare acquired MRSA and *C. difficile* infections. Calculations are made based upon the ward/unit's historical infection rate to produce 3 lines, the upper and lower control limits and the centre line (mean). The setting of the upper control limits allows the local teams to 'trigger' actions promptly in response to any increase in the number of patients identified.



## Quality Improvement

Although SPCs are a method of viewing what is going on at a local level the SPC can also be used to drive improvements in care. This is shown by reducing the mean (centre line) which indicates that less patients are acquiring infection in our wards and hospitals.

This chart demonstrates that infection control practice on a ward has improved. This in turn has resulted in fewer cases and the mean for this ward has been reduced to reflect this. Now that SPC's are available across the whole of NHSGGC we will be actively targeting improvements in areas with historically high levels of infection and sustaining improvements in areas with low infection rates.



## Trigger Events/Charts that Breach the Upper Control Limits

An SPC will only identify that a problem exists – it will not identify what is causing the problem. If a chart is seen to be above the upper control limit the ICT with the local clinical team will review the area to determine the likely cause and develop appropriate action plans.

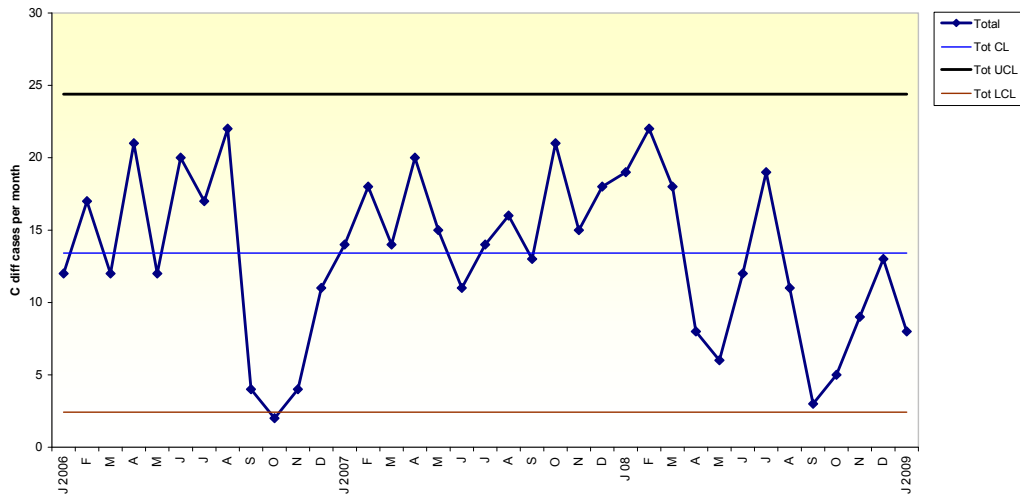
## Directorate Trajectories

SPCs are at their most effective when used to reflect what is going on in individual wards/departments. However the data will be used to develop trajectories for the directorates within NHSGGC in relation to C. diff and MRSA.

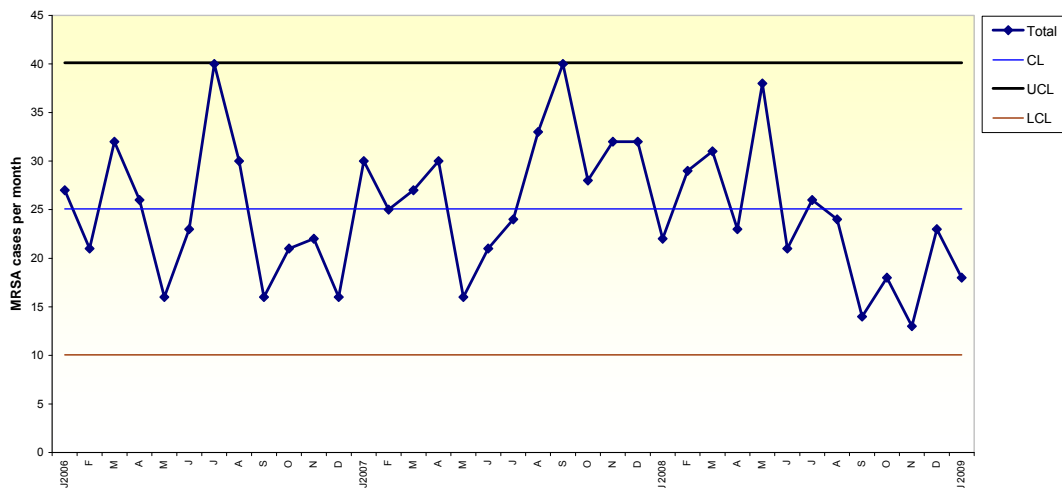
# NUMBER NEW CASES (HAI) PER HOSPITAL SITE 2006-2008

## GLASGOW ROYAL INFIRMARY

SPC Total number of new cases of HAI C. difficile in GRI 2006-2009



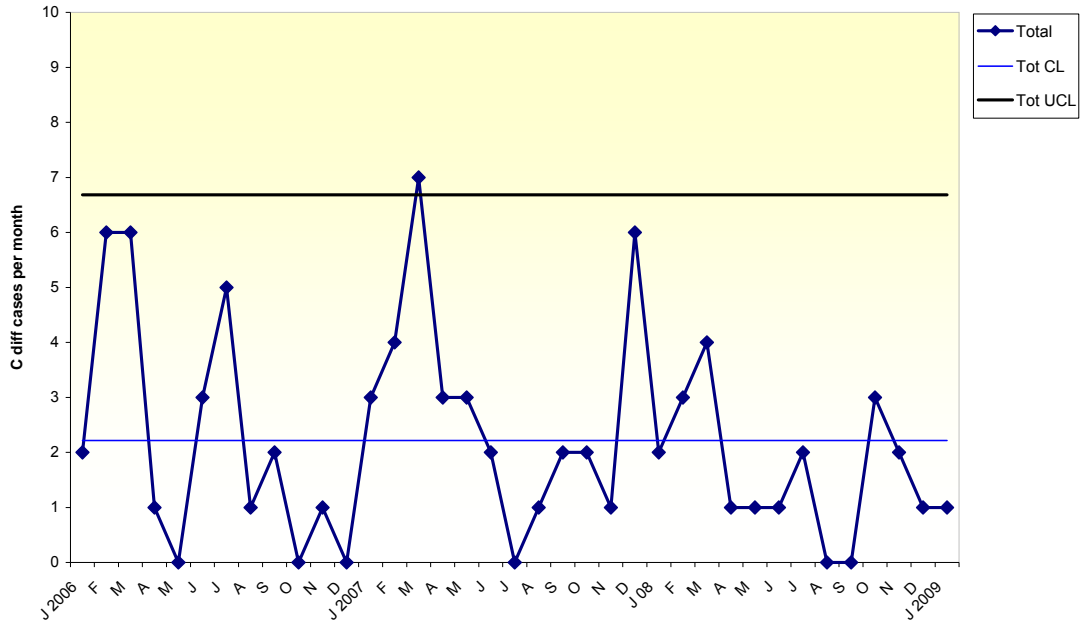
SPC total no. new cases HAI MRSA per month GRI 2006-2009



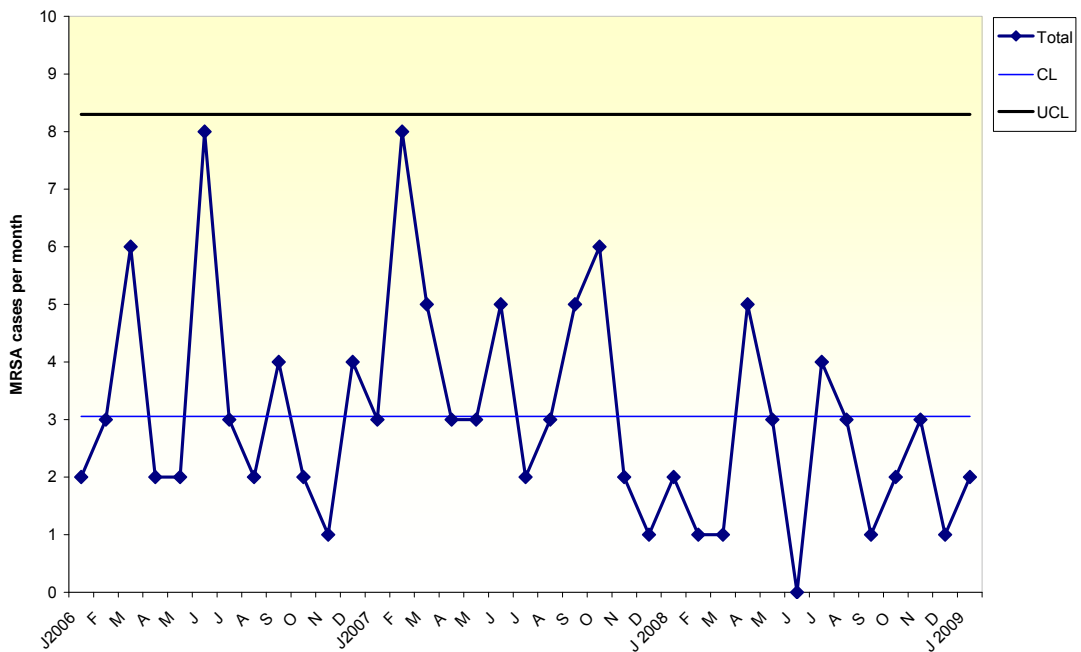
Both charts were within control limits in January 2009.

# LIGHTBURN HOSPITAL

SPC Total No. Cases HAI Clostridium difficile Lightburn Hospital 2006-2009



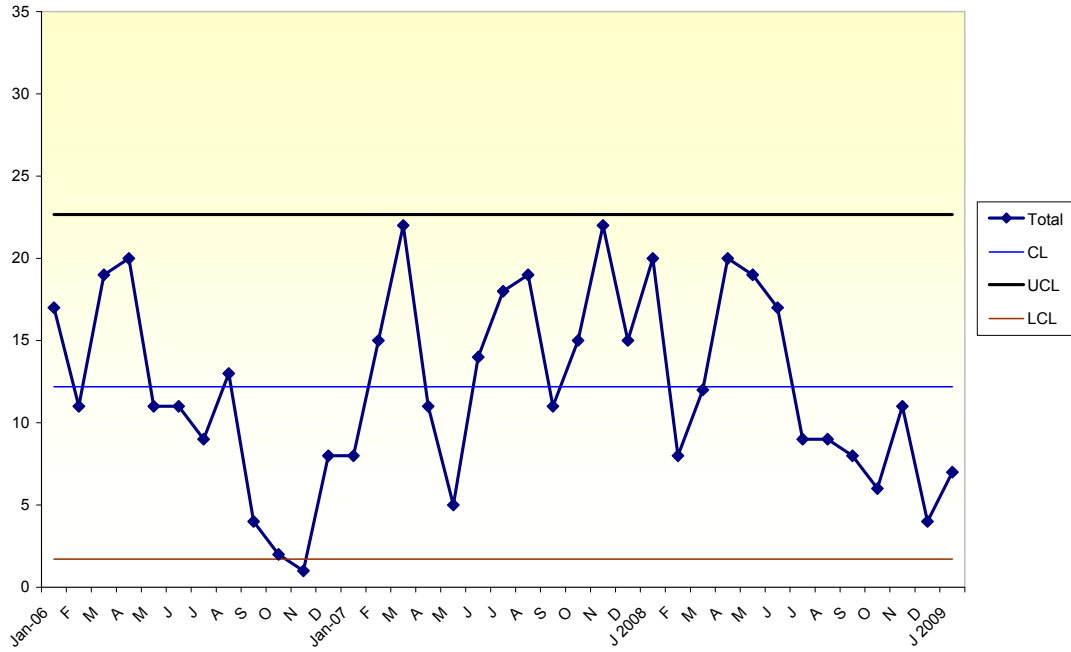
SPC Total No. cases HAI MRSA Lightburn Hospital 2006-2009



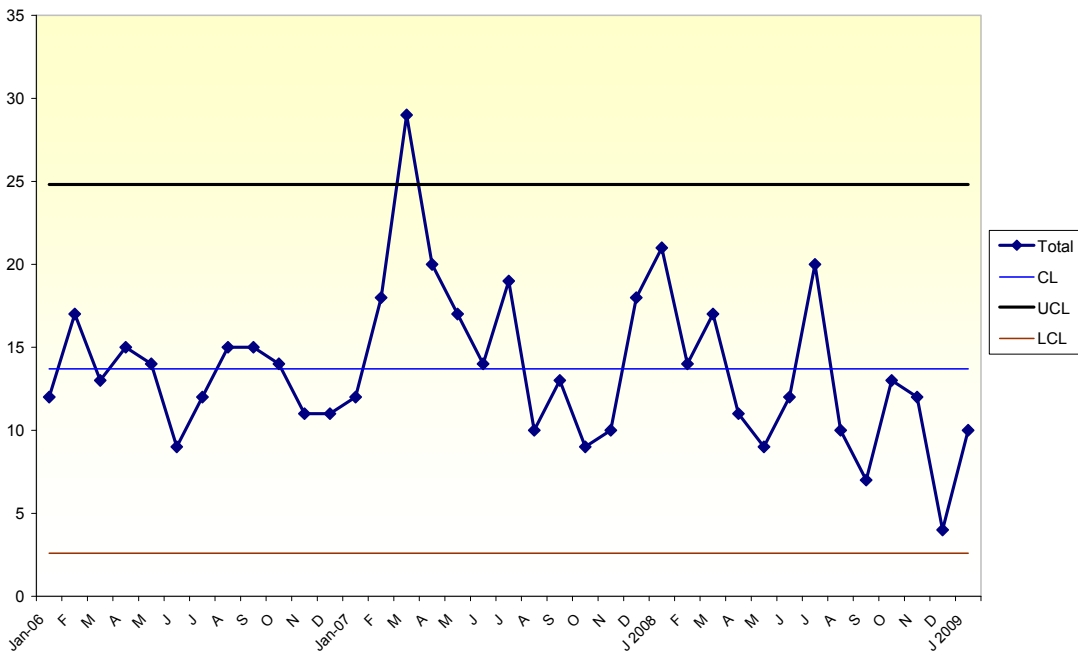
Both charts were within control limits in January 2009.

# STOBHILL HOSPITAL

SPC Total numbers new C.difficile in Stobhill 2006-2009



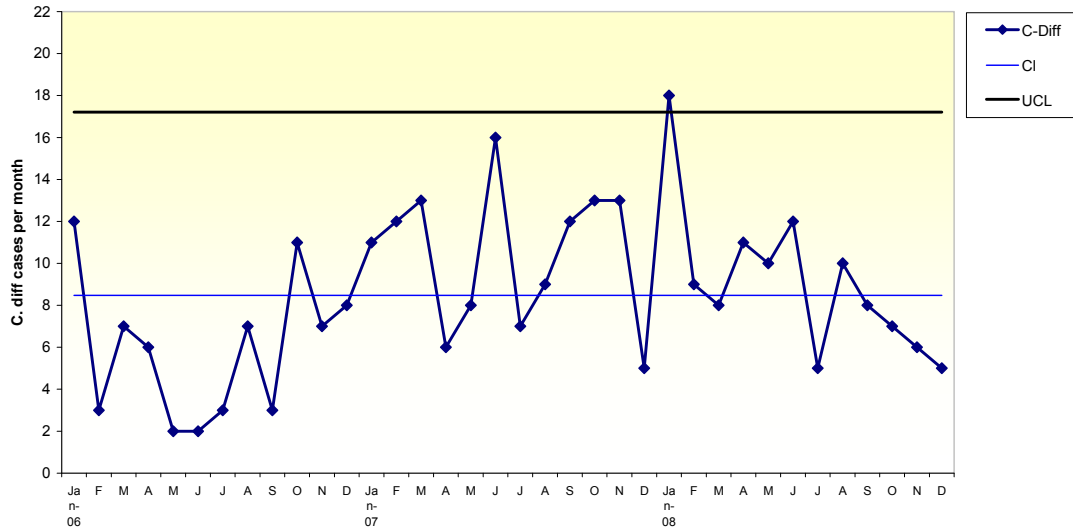
SPC Total numbers new cases MRSA in Stobhill 2006-2009



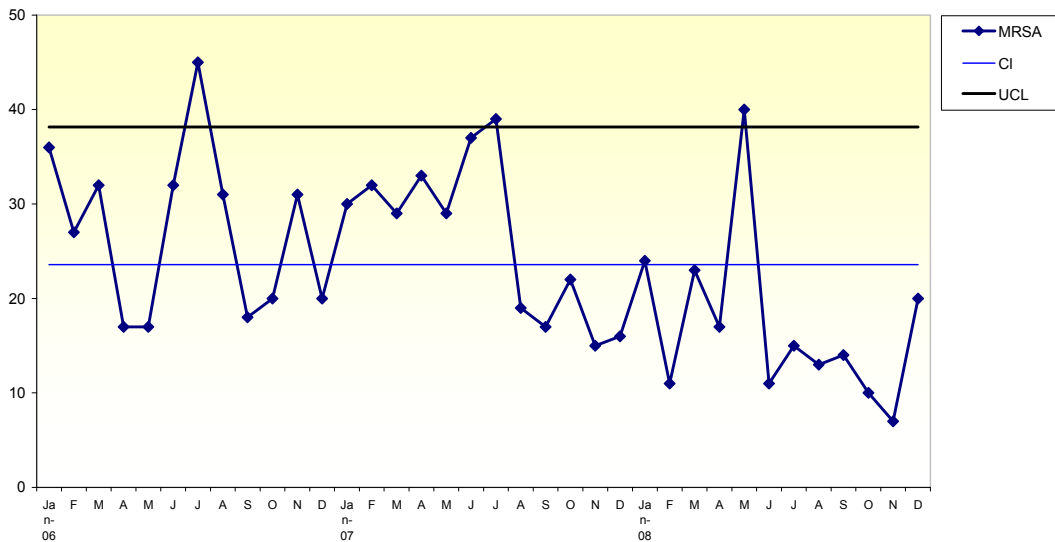
Both charts were within control limits in January 2009.

# ROYAL ALEXANDRA HOSPITAL

C-Diff, 2006- 2008, RAH



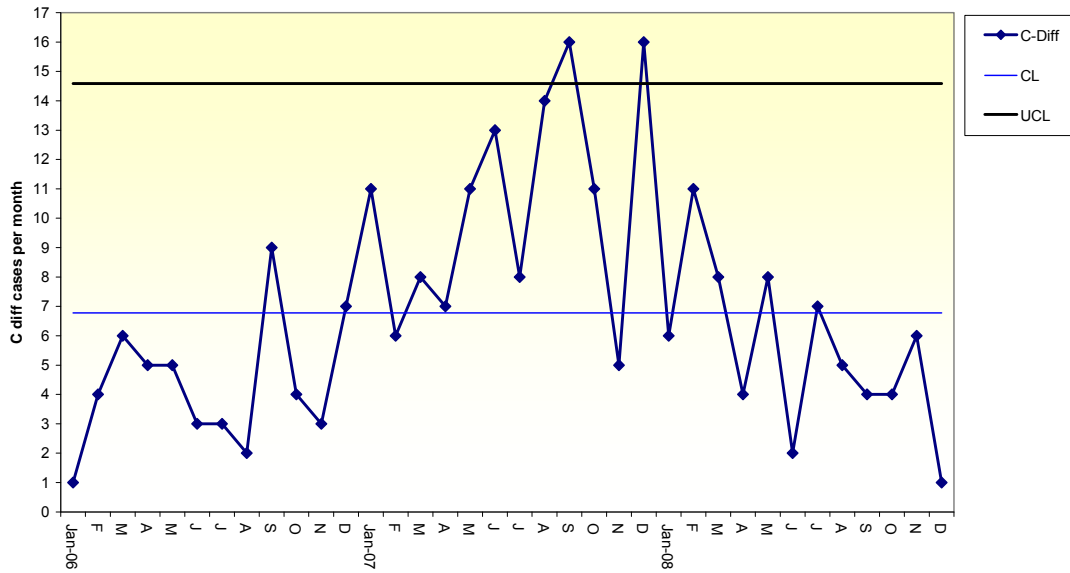
MRSA, 2006- 2008, RAH



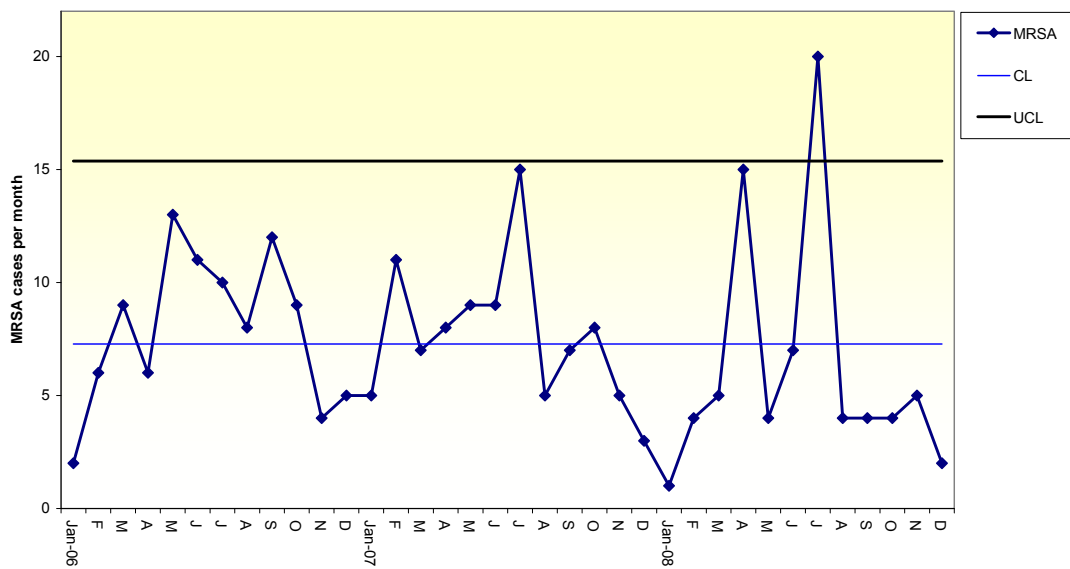
Both charts were within control limits in December 2008.

# INVERCLYDE HOSPITAL

Hospital Acquired C. diff 2006- 2008, IRH



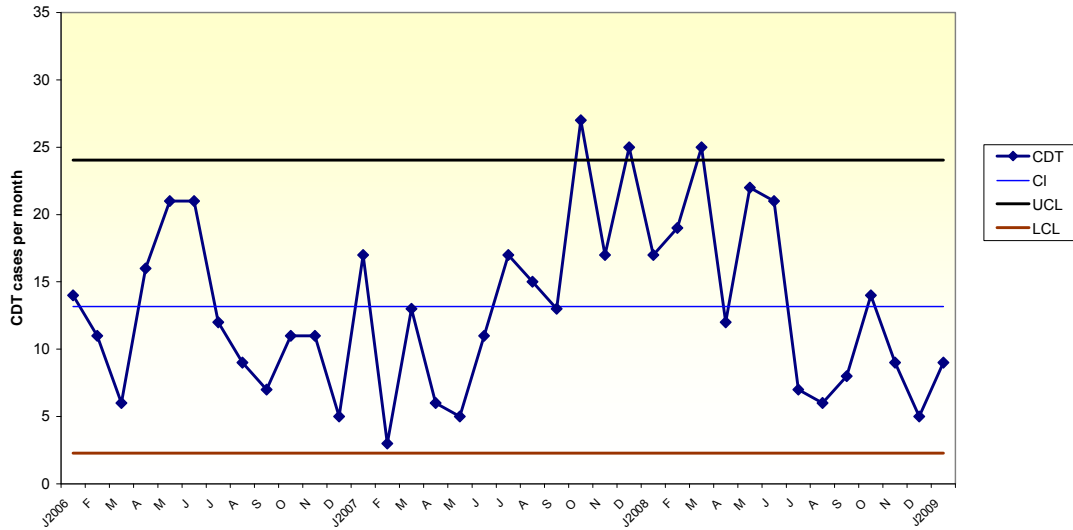
MRSA 2006- 2008, IRH



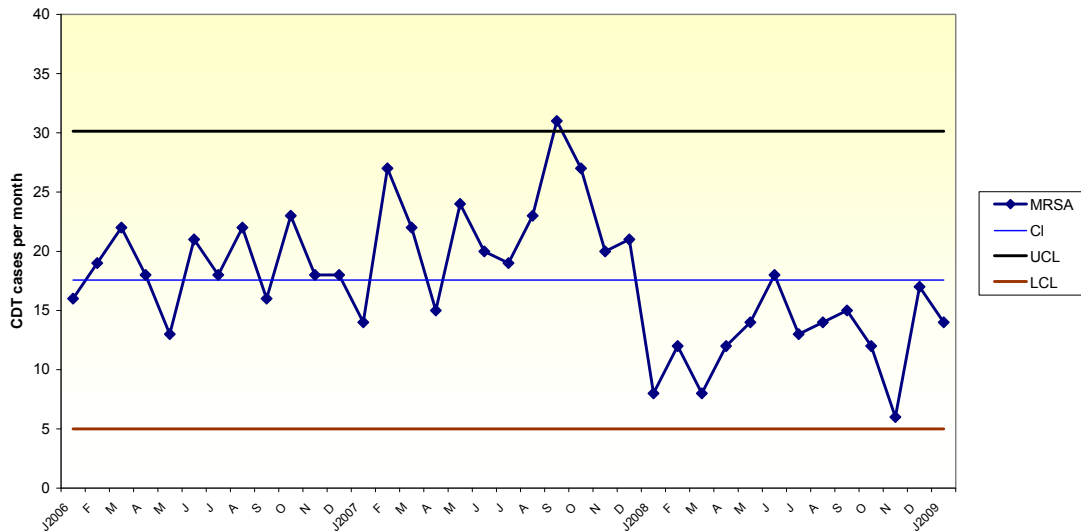
Both charts were within control limits in December 2008.

# VICTORIA INFIRMARY

C. difficile Victoria Infirmary - All Directorates



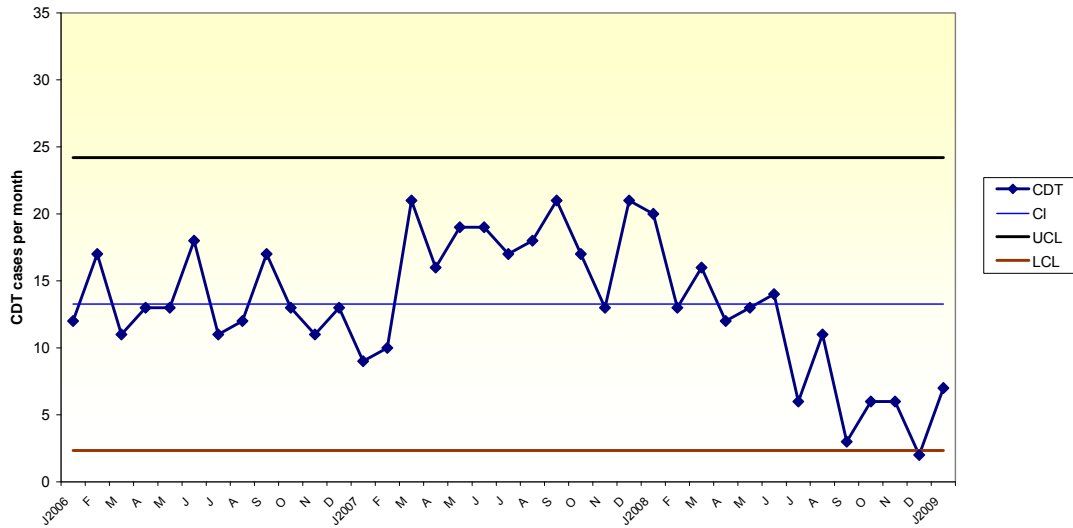
MRSA Victoria Infirmary - All Directorates Total 2006-2009



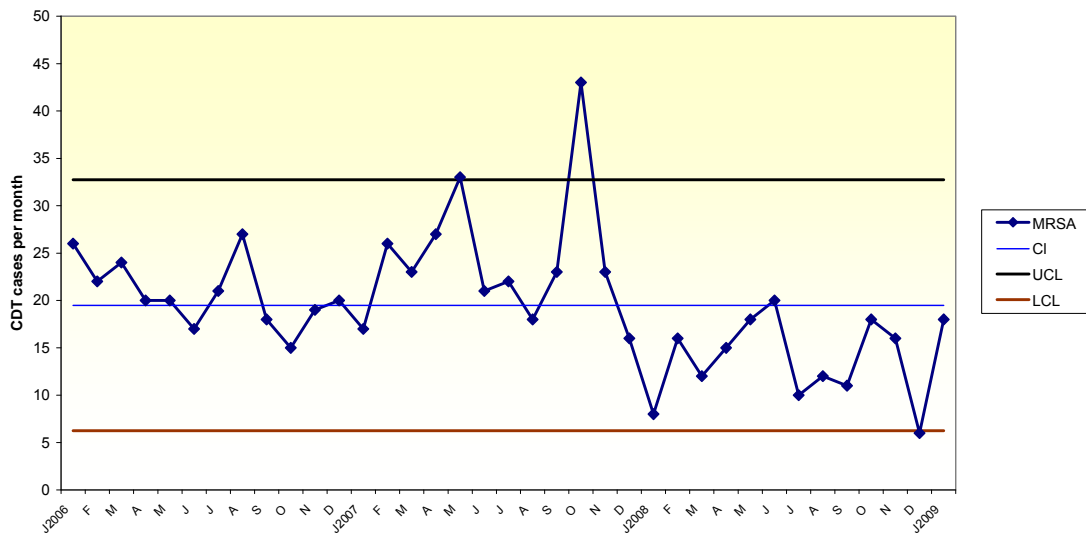
Both charts were within control limits in January 2009.

# SOUTHERN GENERAL

**C. difficile Southern General Hospital - All Directorates 2006-2009**

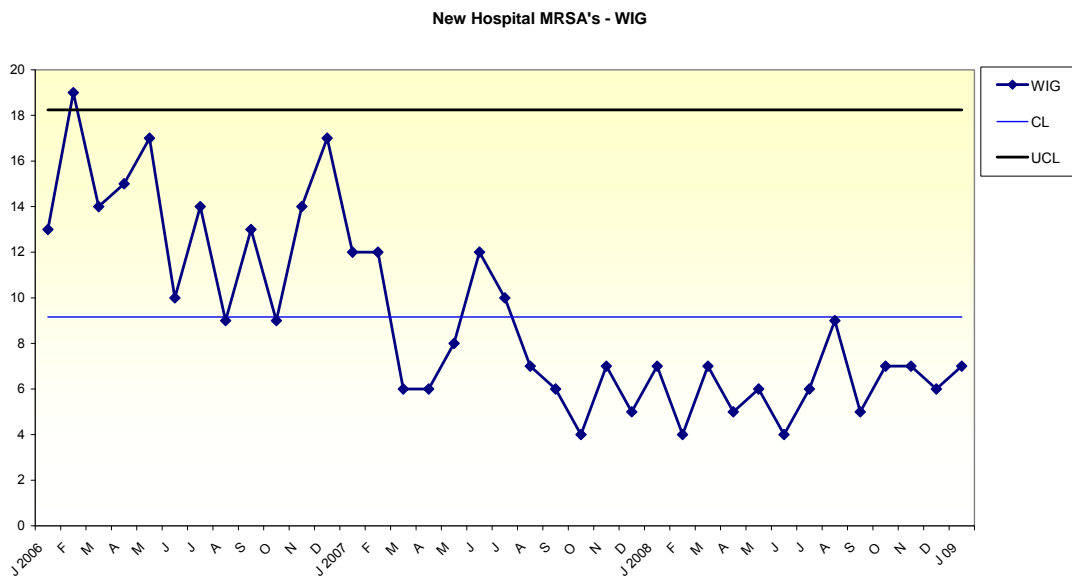
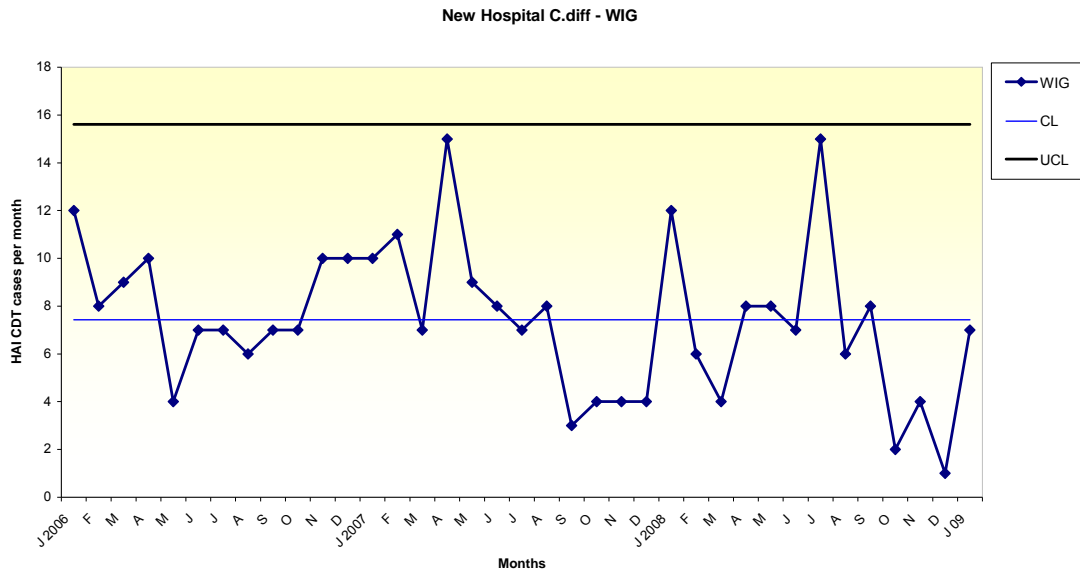


**MRSA Southern General Hospital - All Directorates Total 2006-2009**



Both charts were within control limits in January 2009.

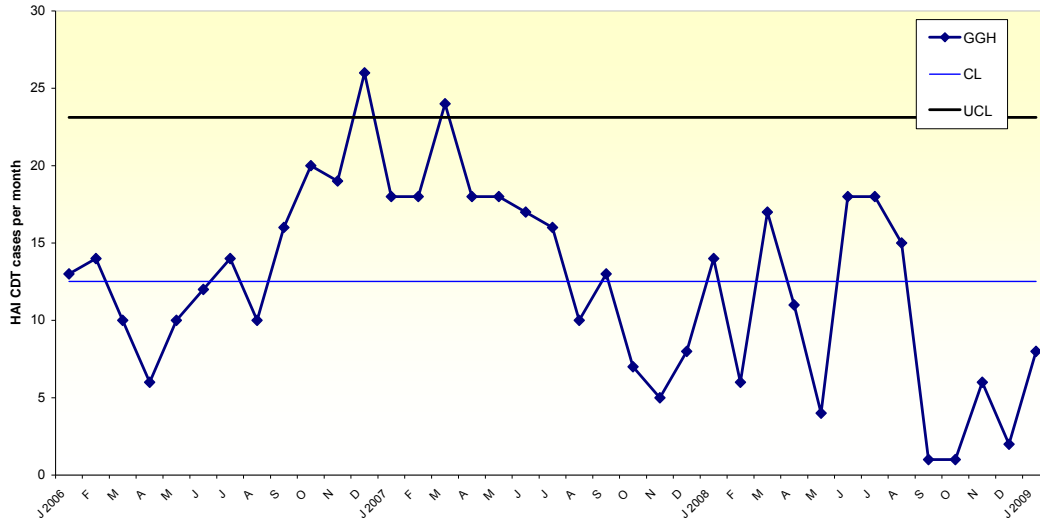
# WESTERN INFIRMARY



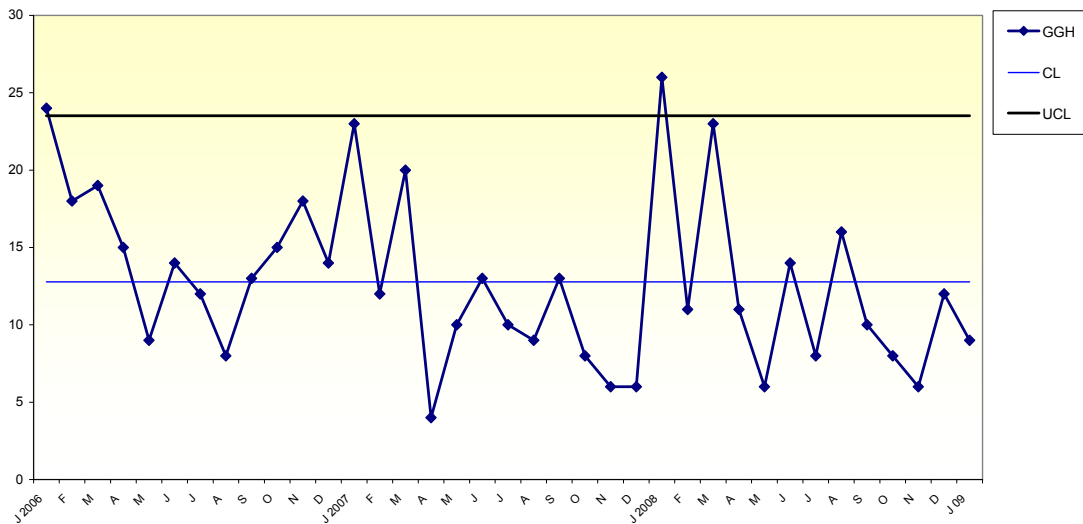
Both charts were within control limits in January 2009.

# GARTNAVEL GENERAL HOSPITAL

New Hospital Cdiff - GGH



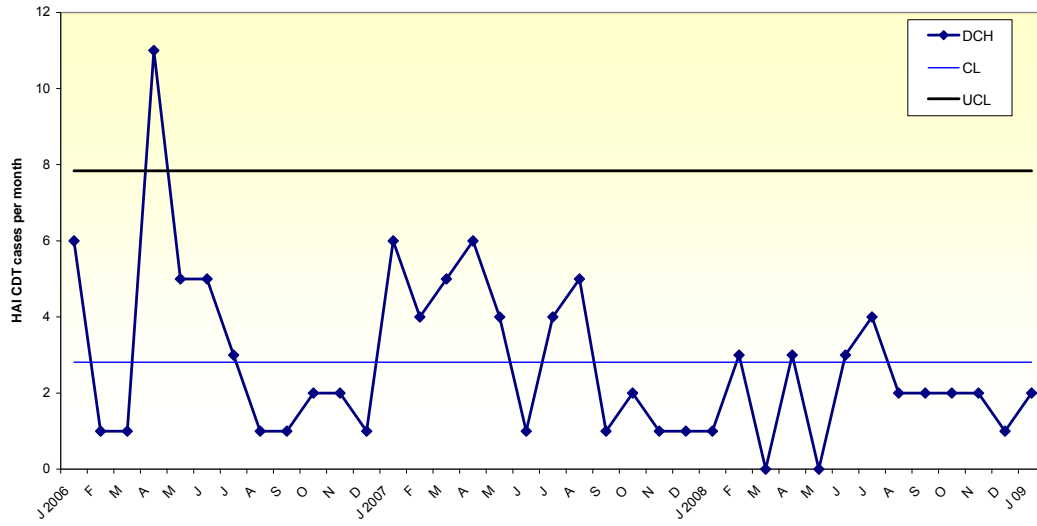
New Hospital MRSA's - GGH



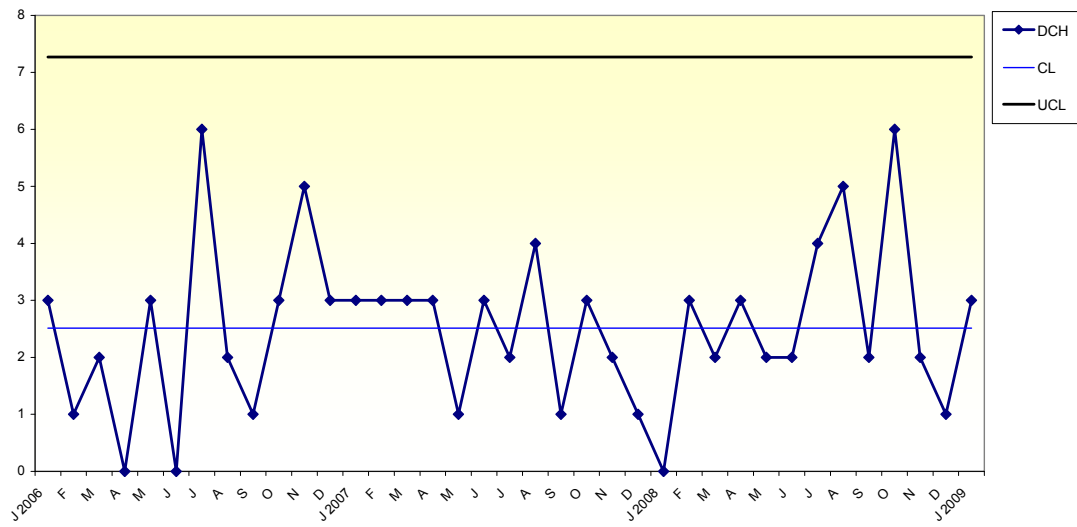
Both charts were within control limits in January 2009.

# DRUMCHAPEL HOSPITAL

New Hospital C.diff's - DCH

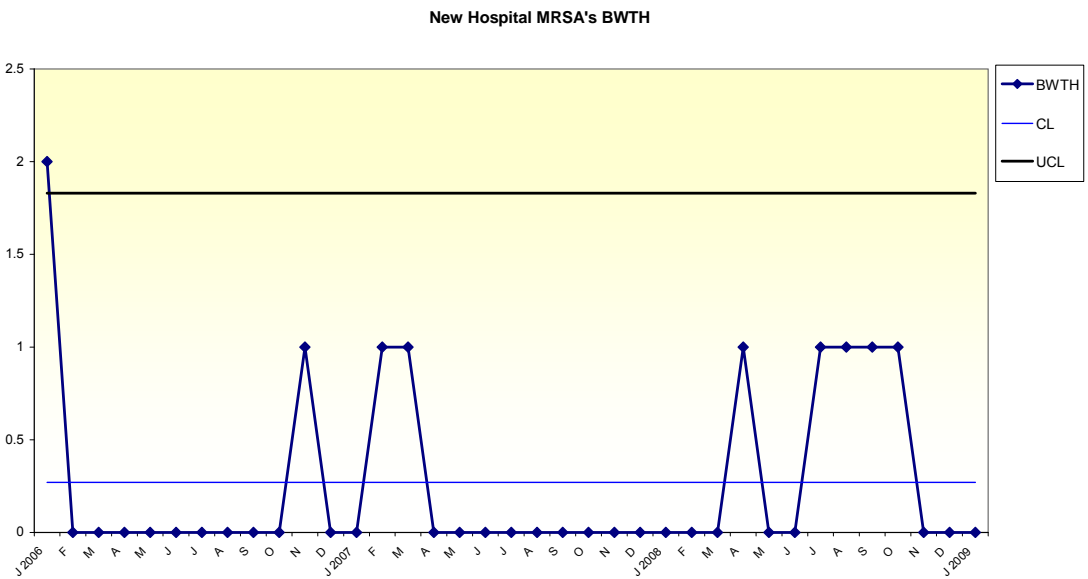
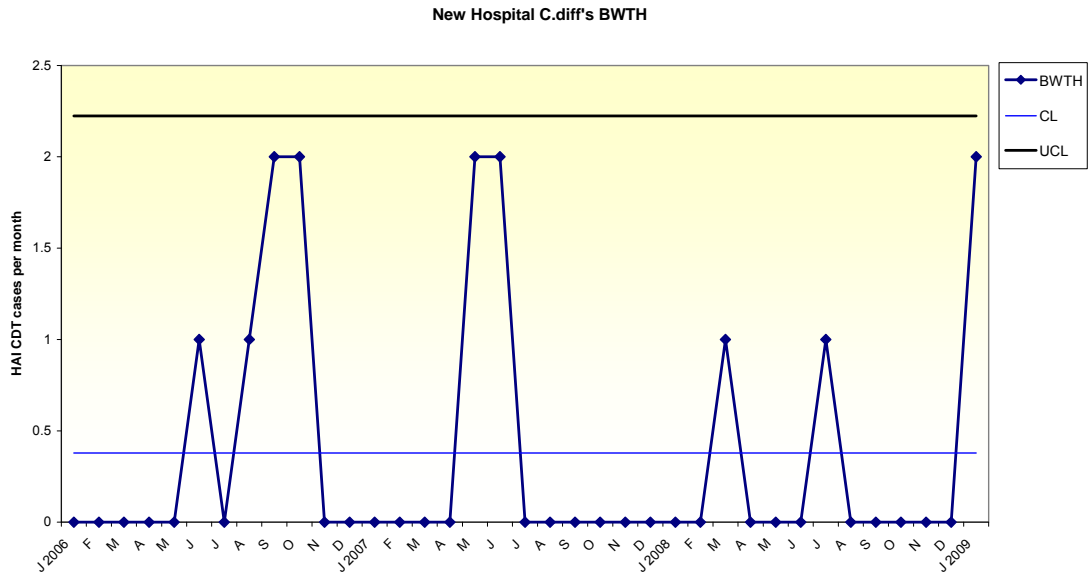


New Hospital MRSA's - DCH



Both charts were within control limits in January 2009.

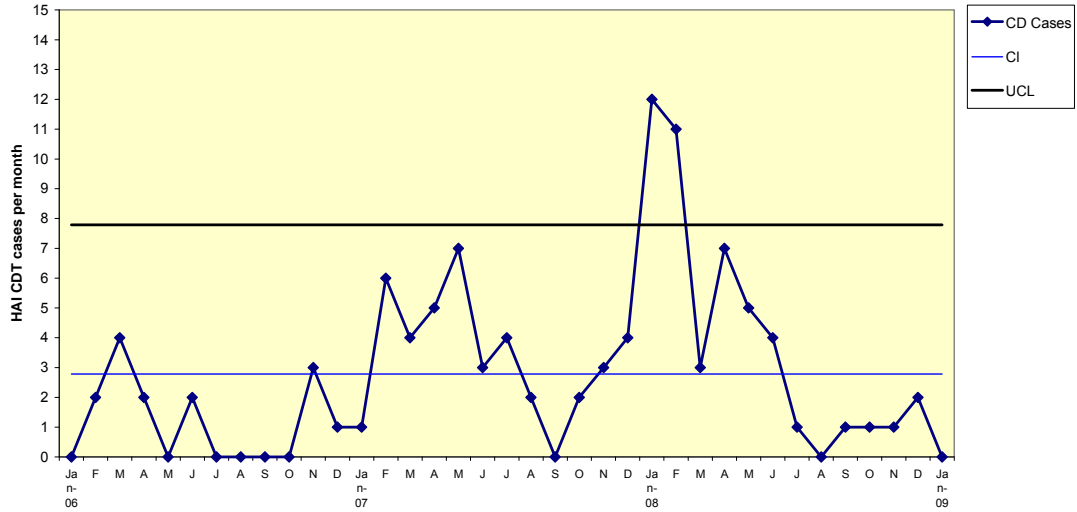
# BLAWARTHILL HOSPITAL



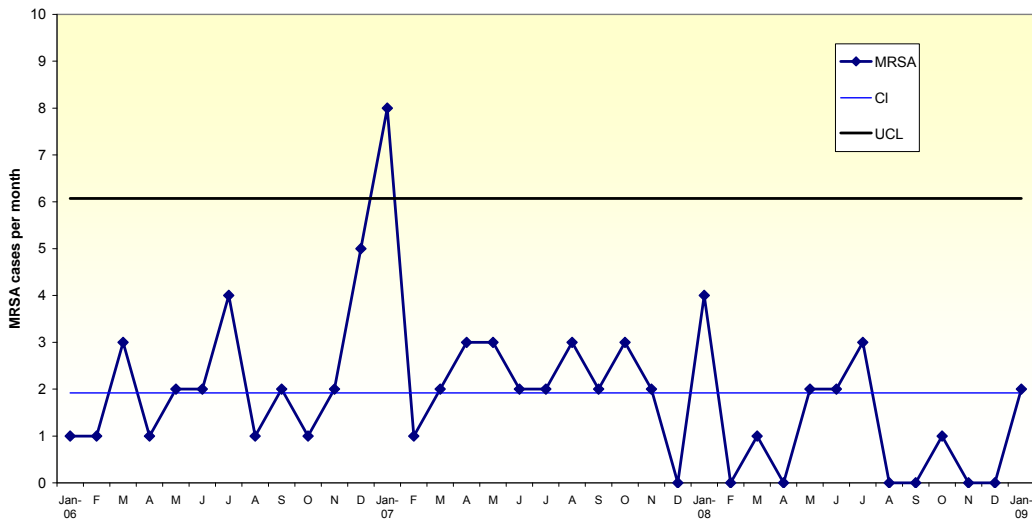
Both charts were within control limits in January 2009.

# VALE OF LEVEN

New C. diff 2006- 2008, VOL



New Cases MRSA 2006- 2008, VOL



Both charts were within control limits in January 2009.

## Ward Based Reporting – Exception Reports

The total number of wards with exception reports per site: DECEMBER 2008

<b>HOSPITAL SITE</b>	<b>MRSA</b>	<b>C diff</b>
<b>RAH</b>	<b>2</b>	<b>-</b>
<b>GGH</b>	<b>1</b>	<b>-</b>
<b>GRI</b>	<b>1</b>	<b>-</b>
<b>VICTORIA</b>	<b>1</b>	<b>-</b>