

INFECTION CONTROL REPORT

Report by Liz McClurg, Temporary Infection Control Manager on behalf of Heidi May,
Board Nurse Director & Executive Lead for Infection Control

The Board is asked to:

- **Note** the contents of the report.

1 Background and Summary

In August 2008 the Scottish Government published the Independent Review of *Clostridium difficile* Associated Diseases at the Vale of Leven Hospital (December 2007 – June 2008). This report raised a number of infection control related issues which may be applicable to other NHS Boards in Scotland. To ensure a consistent approach was adopted nationally, the Scottish Government Health Directorates issued a 'Healthcare Associated Infection (HAI) General Action Plan'.

Item 1.2 of the Action Plan – *Governance*, required all NHS Boards to implement a nationally agreed reporting template, to be used as the framework to report progress against the Hospital Associated Infection Agenda to Board meetings on a two monthly basis. The implementation date for this reporting process was January 2009.

The key purpose of this report is to:

- Ensure visibility of HAI data and issues for Board members, facilitating awareness and action where indicated.
- Assist in creating and populating a routine NHS Board HAI data set to facilitate assurance, awareness and national reporting for various levels within the organisation.
- Placing more detailed local information on HAI's in the public domain in the context of an open Board meeting and on the Board website thereafter.

2 HAI Reporting Template – NHS Highland Activity

The HAI Report Template has two components. The first sets out local data in a spreadsheet by hospital and speciality/staff group. The second sets out the components appropriate to routine analysis and commentary on HAI for Board meetings as a standing item.

The report contains the following subject areas:

- Staphylococcus aureus bacteraemias (SAB)
- *Clostridium difficile* Associated Disease (CDAD)
- Surgical Site Infections (SSI)
- ITU Surveillance
- Hand Hygiene Compliance
- Cleaning Services Specification Compliance
- Significant HAI Incidents / Outbreaks, emerging threats
- Antimicrobial Prescribing
- Horizon Scanning
- Progress on compliance with the Scottish Government HAI Action Plan
- Progress on the national HAI Programme

The NHS activity from 1st November 2009 – 31st December 2009 is reported in Appendix 1 and 2.

3 Contribution to Board Objectives

Our key objective is *“to reduce to an absolute minimum the chance of acquiring an infection whilst receiving healthcare and ensure our hospitals are clean”*. This report presents a comprehensive view of HAI data and activities for scrutiny and feedback from the Board.

4 Governance Implications

4.1 Staff Governance

- As additional information is distributed more widely it will ensure staff are better informed in respect of current issues relating to Infection Control and the management of HAI in our healthcare premises - “HAI is Everybody’s Business”

4.2 Patient and Public Involvement

- The distribution of regular information to the patient / public sector will increase awareness and facilitate increased participation of patient / public representatives in the Infection Control agenda.

4.3 Clinical Governance

- By improving infection control practices, we will endeavour to provide a healthcare environment for patients that minimises the risk of HAI.

4.4 Financial Impact

- By reducing the incidence of HAI in our healthcare premises, financial savings could be achieved through lower rates of infection.

4.5 Better Health, Better Care, Better Value

- By improving infection control practices, we will endeavour to provide a healthcare environment for patients that minimises the risk of HAI.

5 Impact Assessment

As Infection Control policies are updated they are impact-assessed for equality and diversity.

Liz McClurg
Interim Infection Control Manager
Corporate Services

22 January 2010

1 *Staph aureus* bacteraemias (SAB)

1.1 Figure 1 illustrates the number of *Staph. aureus* bacteraemias by month from May 2007 to December 2009. This demonstrates the trend in SAB (both MRSA and MSSA) for NHS Highland, along with the target (30% reduction in baseline rate). An increased number of episodes were identified in October and November. The total number of episodes April-November is similar to the number accruing during the same period in 2008.

Figure 1

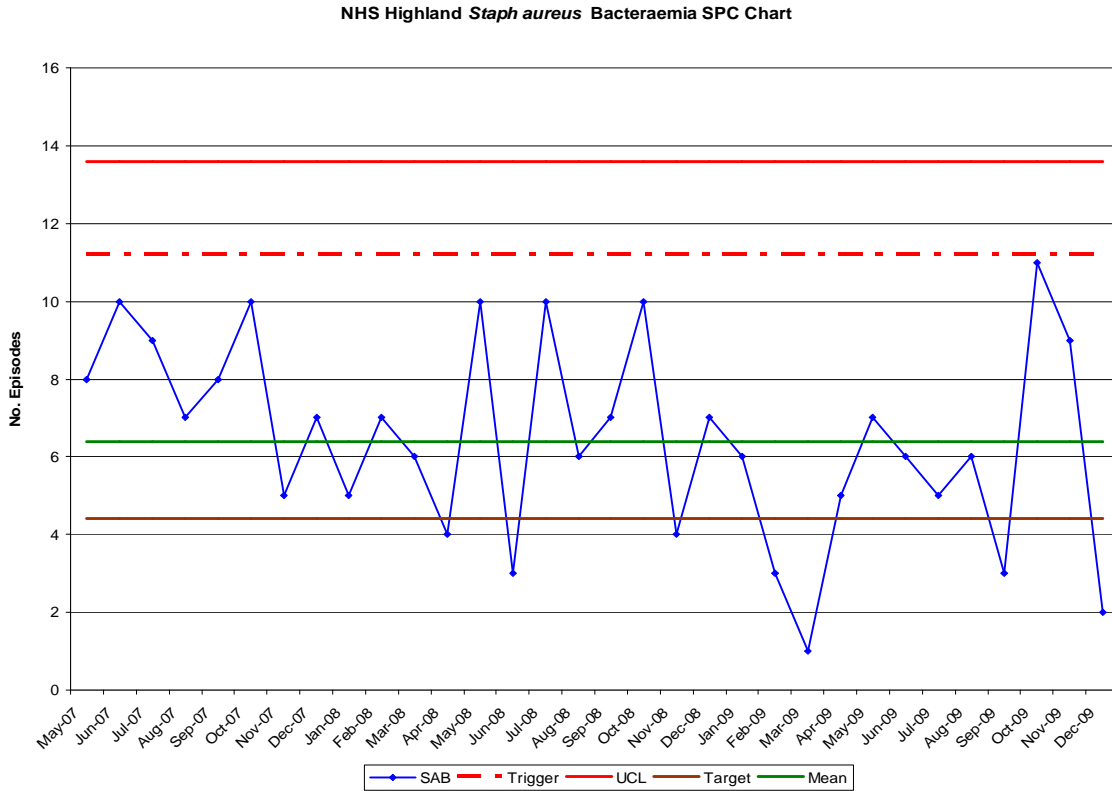


Figure 2: Division between MRSA/MSSA bacteraemias

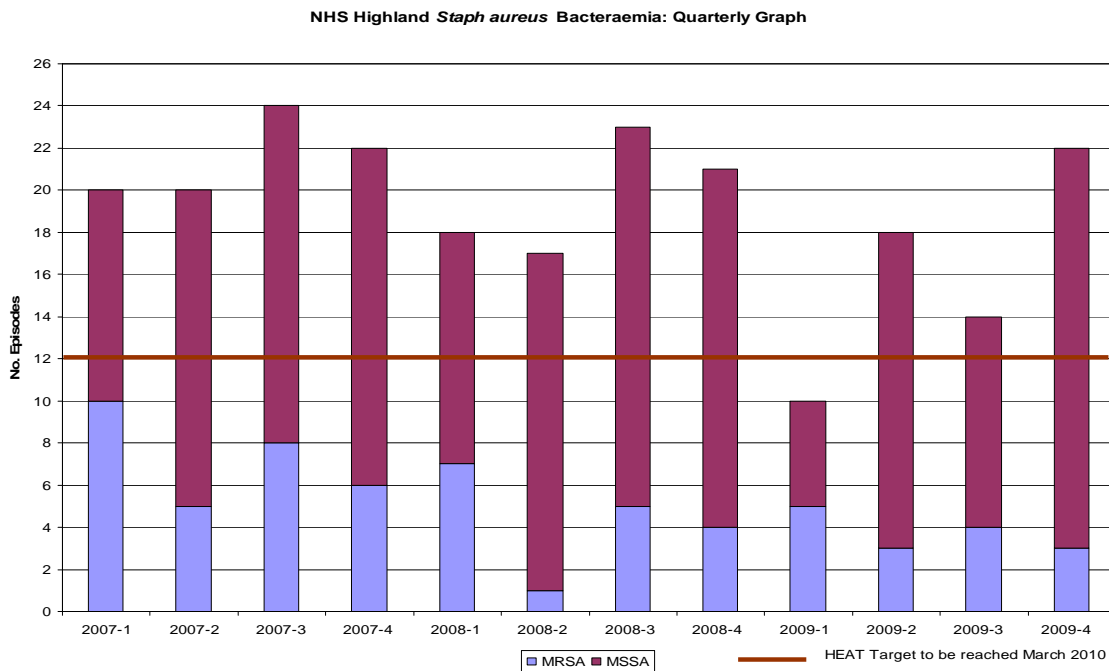
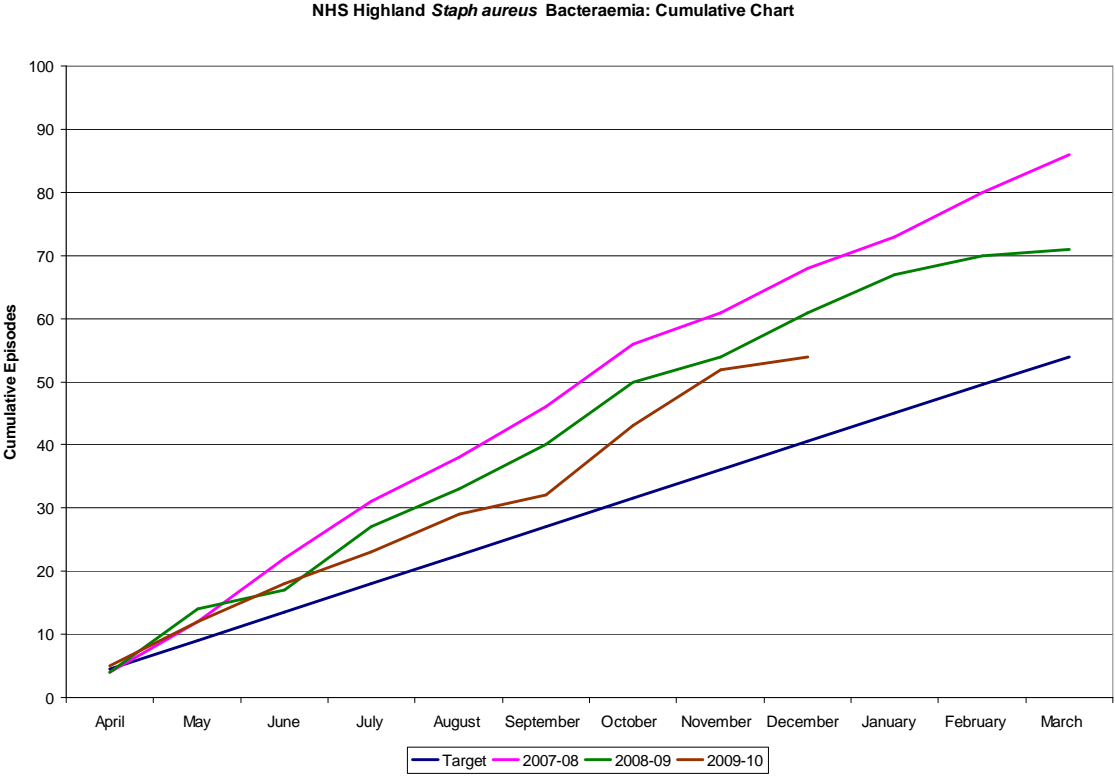


Figure 3



1.2 Current HEAT status

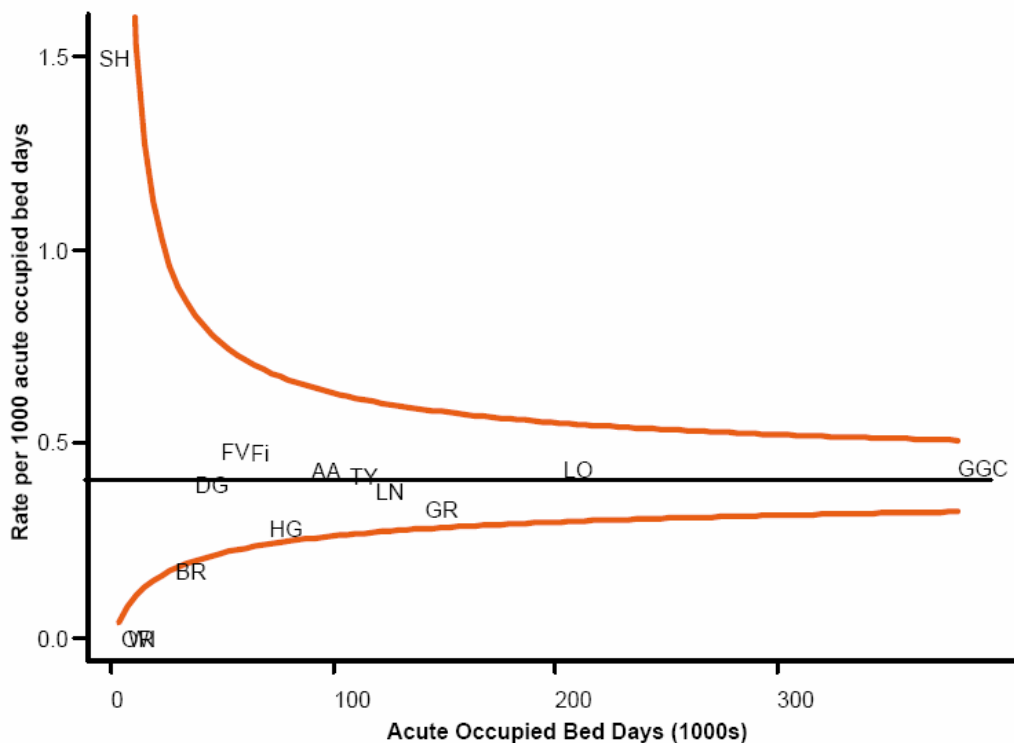
The SAB target has been identified consistently as very challenging for the Board due to a low base rate of infection to begin with. The annual SAB target for NHS Highland is 54 cases in the year April 2009 to March 2010. In December 2009 NHS Highland registered its 54th case of SAB. It is therefore very unlikely that NHS Highland will achieve the target. However this should be seen in the context of year on year improvement (Figure 3) and NHS Highland having the second lowest rate of SAB infection of all the mainland Boards in Scotland (second only to NHS Borders see Figure 4), and is likely to have a lower rate of infection than most of the Scottish Boards which do achieve their targets.

1.3 National context

It has been identified by the Scottish Government that all NHS Boards will be asked to further reduce SAB case numbers by 15% by March 2011. Achievement of the additional target will be measured using the March 2010 target projection. Once again, this will be a very significant challenge for NHS Highland to achieve.

Figure 4: Funnel plot of *S. aureus* bacteraemia rates for all NHS Boards in Scotland against acute occupied bed days (x1000) for the period April – June 2009.

Key to abbreviation: HG = Highland



1.4 Current/new initiatives to reduce cases

- Surveillance of SAB. Analysis of cause and detailed feedback to staff continues.
- Promotion of hand hygiene across all staff groups and general public. NHS Highland achieved 93% compliance with opportunity in the last National Hand Hygiene Audit and 90% with technique. The January National audits are currently underway.
- Scottish Patient Safety Programme (SPSP), CVC maintenance bundle implemented within ITU at Raigmore Hospital, with 386 days (13.01.10) since the last CVC related blood stream infection.
- A repeat Prevalence Survey of peripheral venous catheters and their compliance with the SPSP PVC bundle was carried out by the Raigmore Infection Control Team in December 2009. This demonstrated some improvement and identified areas which require more intensive work. The results were fed back to Senior Charge Nurses, Senior Managers, Raigmore Infection Control Committee and the SPSP Manager.
- QIS supported NHS Highland in the development of its original SAB Action Plan. In view of the challenging target and the new one QIS were invited to Highland on the 13th January 2010 to support the Board in reviewing its current Action Plan and developing a new one. This was a very productive and helpful session and a new SAB Action Plan is being written up and will be available to the April Board. Implementation has already begun.

- The first Learning Session of NHS Scotland Infection Improvement and Implementation Programme (LIP) building improvement capacity in each HAI will be held in February 2010 and will be attended by members of NHS Highlands Infection Control Team and Patient Safety Lead.

1.5 Pan-Board, Hospital or specialty specific problems identified

At the Control of Infection Committee in December 2009, it was formally agreed that ChloroPrep (chlorhexidine 2% in alcohol) would be the replacement product for Sterets H pre-injection swab which had been discontinued by the manufacturer in June 2009. ChloroPrep is the only product available in the UK which is licensed for use for skin disinfection prior to venflon insertion. An additional recurring cost of £84k across the NHS Board has been estimated.

2 **C. difficile infection (CDI)**

2.1 Short / medium / long term trends in CDI

- In 2008 a significant reduction in CDI cases from the previous year was achieved and this low level has been maintained in 2009.
- Figure 5 shows the monthly numbers of new cases of *Clostridium difficile* toxin positive episodes in NHS Highland, plus repeat episodes >28days plotted on an SPC chart.
- Figures 6, 7 and 8 show the number of new cases within Raigmore, Belford and Caithness General Hospitals, including trigger levels. Lorn and Islands Hospital trigger levels will also be included in April's report.
- Figure 9 shows year on year improvement for NHS Highland and over achievement against the HEAT target.

Figure 5

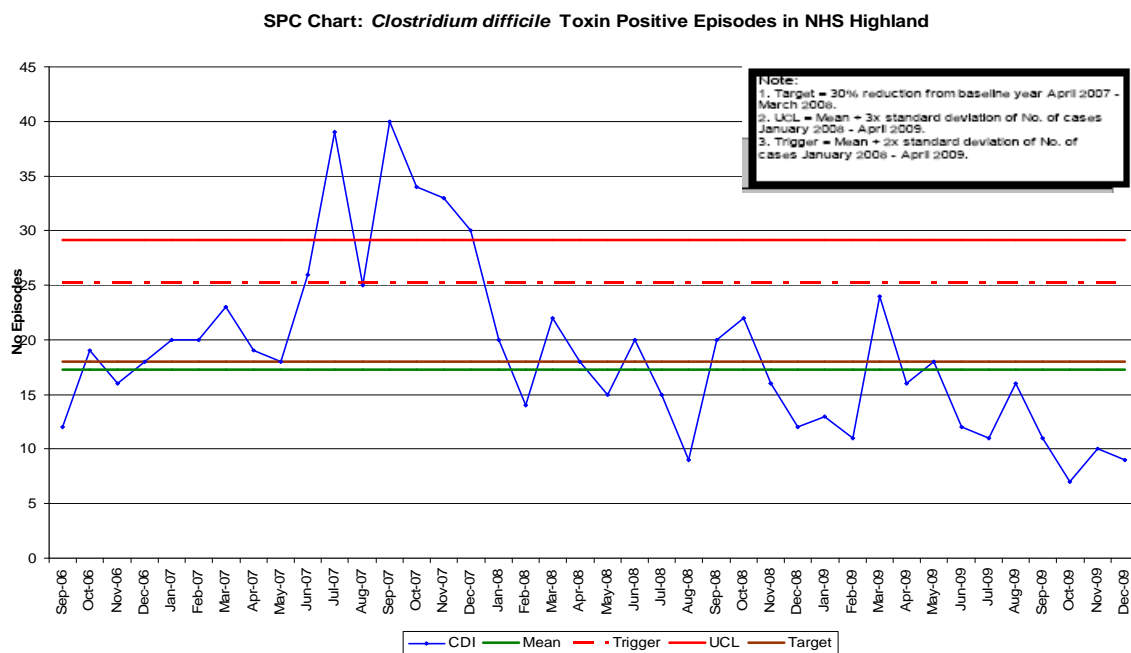


Figure 6

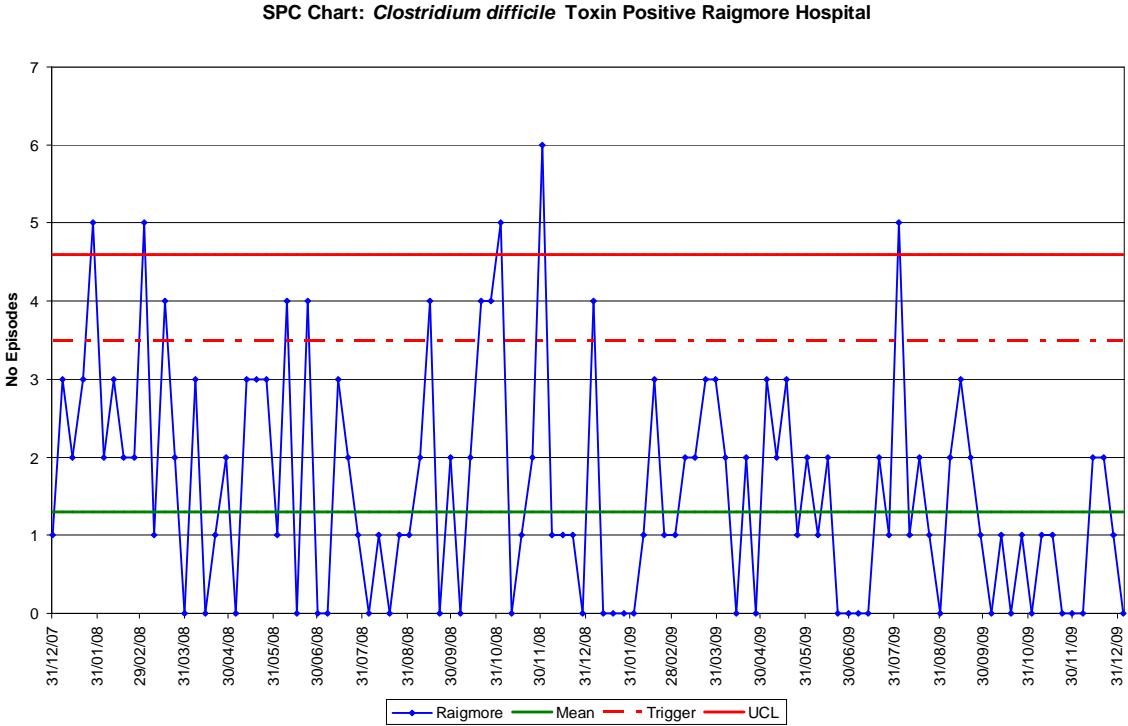


Figure 7

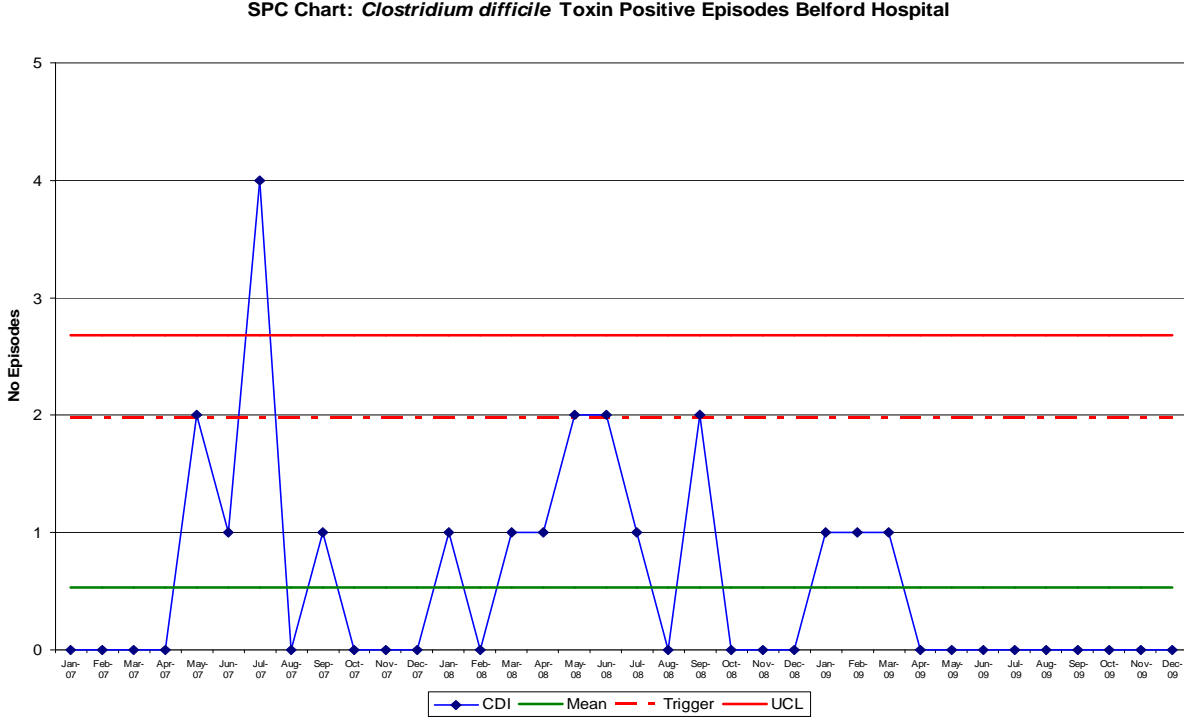


Figure 8

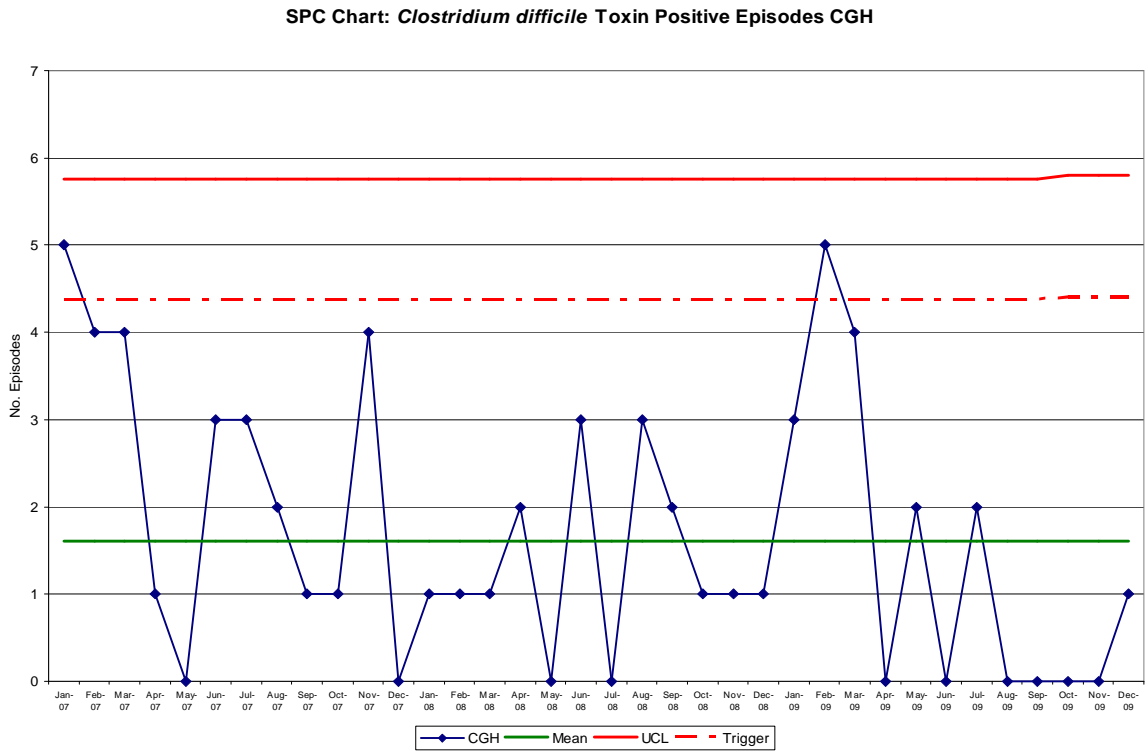
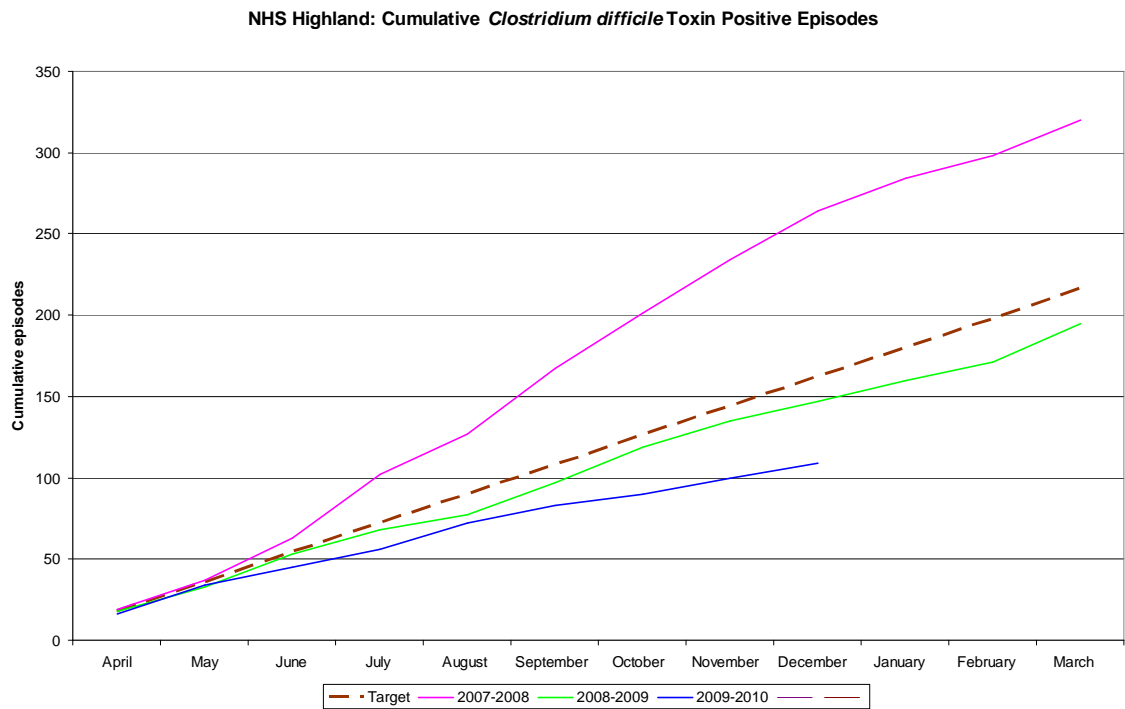


Figure 9



The Raigmore Infection Control Team have implemented an additional graph in the weekly surveillance feedback report which details the number of new *C.diff* cases

identified within Raigmore over the previous 8 weeks. This allows for early identification of trends and potential problem areas (see Figure 10).

Figure 10

Ward	16/11–22/11	23/11–29/11	30/11–06/12	07/12–13/12	14/12–20/12	21/12–27/12	28/12–03/01	04/01–10/01
					1			
					1	1		
	1							
							1	
						1		

2.2 Current HEAT status

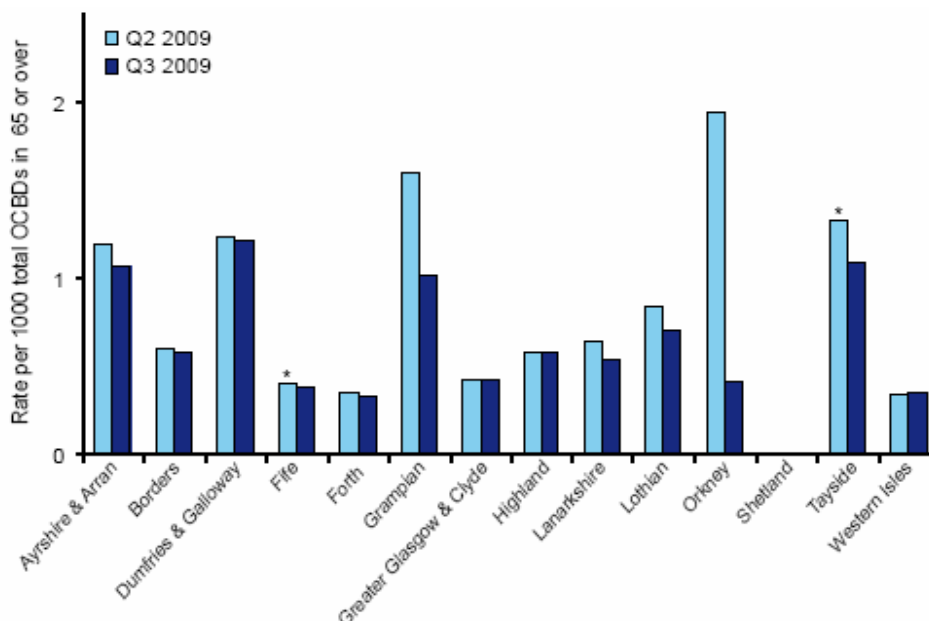
Table 1 shows that the CDI rate in patients aged ≥ 65 years is below that for all Scotland and that NHS Highland is on target to meet the HEAT target.

Table 1

NHS board	Overall annual rate (Apr 08-March 09)	HEAT target (March 2011)
Highland	0.67 (95% CI 0.57, 0.79)	0.77
Total Scotland	1.09 (95% CI 1.07, 1.12)	0.90

2.3 National context – most recent HPS quarterly national report

Figure 11 Rates of CDAD per 1000 total OCBDs in patients aged 65 or over in acute and non-acute hospitals in 14 NHS boards in Scotland.



Current/new initiatives to reduce cases

A multi-disciplinary group was convened in 2007 with the specific aim of reducing CDAD/CDI. The group developed and implemented a nine point action plan based on the 2004 Department of Health Guidelines for control of CDAD. An update on the action plan is detailed below:-

- Antimicrobial prescribing with particular emphasis on reduction of Ceftriaxone prescribing- Ceftriaxone prescribing is currently <10 Defined Daily Doses (DDD) per 1,000 occupied bed days within Raigmore, down from >40 DDD per 1,000 occupied bed days in 2007. Ceftriaxone prescribing has also been significantly reduced in Caithness General Hospital.
- Hand hygiene (with emphasis on the importance of hand washing) - Progress on hand hygiene is detailed later in this report.
- Enhanced environmental cleaning- Observational audit on the cleanliness of commodes undertaken by the Infection Control Nurses. Clinell clean indicator tape now in use within all wards at Raigmore.
- Provision of personal protective equipment - the implementation of colour coded aprons in line with National Patient Safety Agency National Colour Coding scheme for hospital cleaning materials and equipment has now been implemented in Raigmore, with the exception of ITU who use a different colour for each patient to stop cross contamination.
- Staff education and training – presentations have been undertaken by members of the Antimicrobial Management team to clinical staff in all four acute hospitals. A self teaching package on Clostridium difficile has been compiled by the Infection Control Team and distributed in hard copies to all wards in Raigmore and SECHP. It is also available on the intranet.
- Isolation of infected patients, including returning single rooms to patient use- Completed.
- Surveillance including weekly feedback to all levels of the organisation-ongoing. Surveillance expanded to include 30 day follow up from diagnosis for C. Difficile.
- A C. Difficile alert sheet endorsed by the Antimicrobial Management team has been placed on all drug trolleys. This alerts medical and nursing staff to the antibiotics most strongly associated with C.difficile disease, advising staff to switch to a narrower spectrum antibiotic or discontinuing antibiotic therapy as soon as the microbiological results are available.
- The wards have each been issued with run charts', detailing the number of days since a case of C.difficile has been identified in the ward.

3 Surgical Site Infections

The Board currently undertakes surveillance in the following:

Surgical Site Infection:

- Emergency and elective caesarean sections (including up to 10 days post discharge)

- Total hip replacement (including 30 days re-admission).
- Hemiarthroplasty and Dynamic Hip Screw (DHS) (including 30 days re-admission)

Intensive Care Unit HAI:

- Central Venous Catheters
- Ventilator Associated Pneumonia
- Alert organism
- *Clostridium difficile* infection (CDI)
- *Staphylococcus aureus* bacteraemia (SAB)
- Empiric antimicrobial utilisation (funded by CEL 54 monies until March 2010)

The quarterly surveillance figures will be available for the April Board Report. If there are any increases the Surveillance Team will flag these up immediately and action taken.

4 Intensive Therapy Unit (ITU) Surveillance

Figure 12 – No of Days between CVC Infections

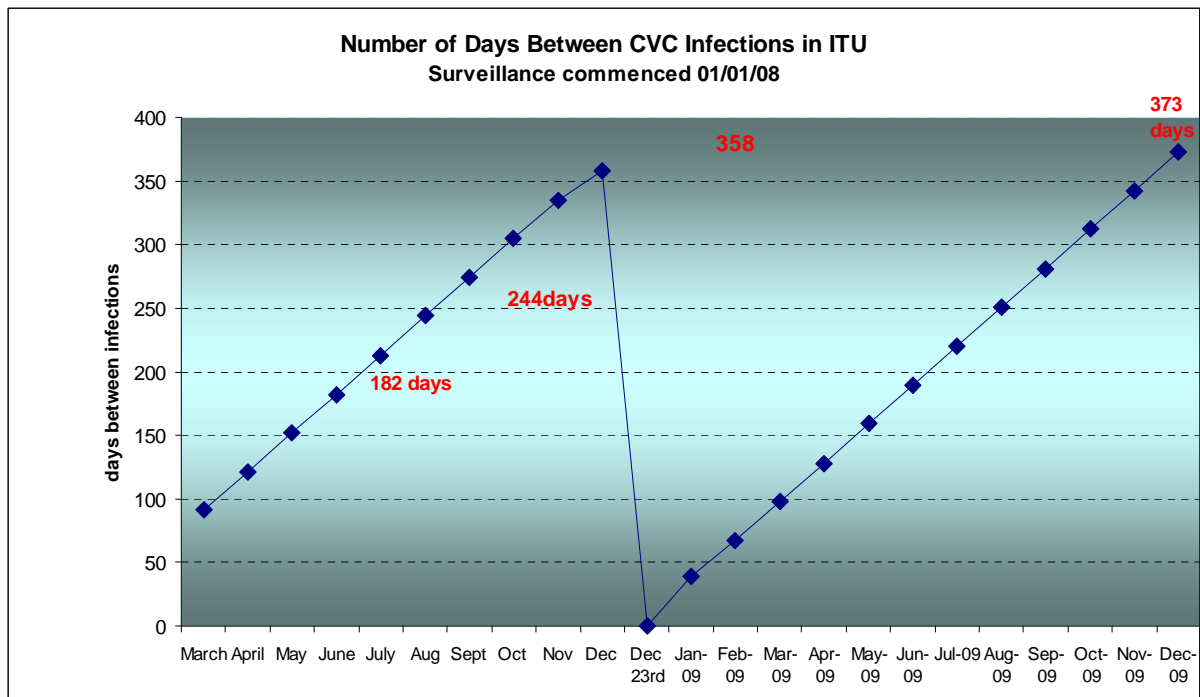
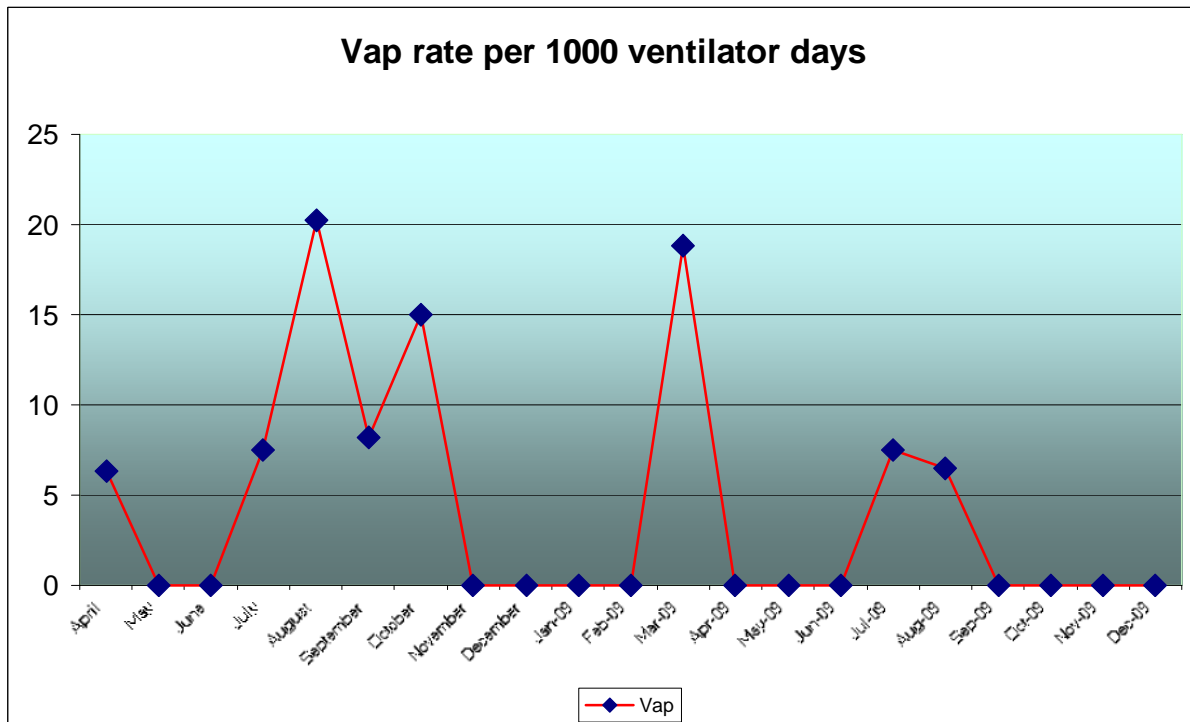


Figure 13 VAP Rate per 1000 Ventilator Days



5 Hand Hygiene (HH) programme

5.1 National context – National audits continue every two months. November 2009 audit confirmed that NHS Highland achieved a compliance rate of 93% with opportunity and 90% compliance with technique.

5.2 NHS Highland Rolling Audit Programme – CEL5 (2009) requires Boards to report on compliance with Hand Hygiene across all clinical areas and ensure that audits are undertaken on a minimum monthly basis. Full details of the rolling audit results for all wards within NHS Highland will be available for the April Report.

5.3 Current/new initiatives in promoting Hand Hygiene

- Audible and visual signage has been installed at ward entrances. The units in peripheral hospitals have been upgraded at no extra cost to allow messages to be changed as required.
- The audible signage was demonstrated to Nichola Sturgeon, Health & Wellbeing Cabinet Secretary, during her visit to Raigmore as part of NHS Highland Annual Review in December.
- New Craigs Hospital, for clinical reasons, does not have audible/visual signage. Lockable, wall-mounted hand hygiene dispensers have been placed at the entrance to each area.
- Hand Hygiene awareness pack is being prepared and will be presented to the hand Hygiene Action Group on 28th January 2010.

- A Hand Hygiene Products Flowchart is being printed and will be distributed in February 2010. This will enable staff use the correct products for the correct task.
- The national hand hygiene campaign is currently focusing on primary care settings including independent contractors such as GPs, GDPs, Pharmacists and Optometrists.

6 Cleaning Services Specification Compliance

- 6.1 Short / medium / long term trends and compliance.
The Hotel Services Manager (Quality and Training) monitors performance 2 monthly across NHS Highland. An action plan is developed for areas which do not come up to specification. See Appendix 1 for Cleaning Specification Compliance.
- 6.2 National context – most recent HFS quarterly national report
NHS Highland has maintained a consistent standard over the last four quarterly reports.
- 6.3 Current/new initiatives in improving cleaning
Introduction of National Initiatives.
Sixteen Steam Cleaners have been distributed throughout Highland. The Trainers have completed training to teach the Domestic staff. Nursing staff will also be trained on how to use this equipment.

Additional funding has been provided by the Scottish Government for more Domestic staff and recruitment is in progress.

7 Significant HAI incidents / outbreaks, emerging threats

7.1 Outbreaks

- There have been three outbreaks of diarrhoea and vomiting within NHS Highland over November and December 2009. Norovirus not proven.

Hospital	Number of Wards	Number of Patient(s) affected	Number of Staff affected
New Craigs	1	8	11
Dunoon	1	4	4
Belford	1	6	7

7.2 Horizon scanning

- The Infection control team and the microbiology laboratory continue to work towards implementing additional MRSA screening in accordance with the NHS Scotland Pathfinder Programme Summary Interim Report. The project manager, Lynda Brady has now been appointed. Implementation of patient screening commenced in January 2010.
- Healthcare Environment Inspectorate (HEI) undertook an announced inspection in Raigmore Hospital on Tuesday 15th and Wednesday 16th December 2009. The inspectors visited A&E, out patients department, 3C, 5C, 7C and AMAU. Whilst the final report will not be available until February, the verbal feedback was positive.

7.3 Pandemic flu

- The Scientific Advisory Group on Emergencies (SAGE) has publicly declared that the peak of the second wave of pandemic flu has now passed. Within Raigmore hospital, the children's ward continues to have a high number of admissions with respiratory complaints, the majority of which are Respiratory Syncytial Virus (RSV) positive.
- Although Raigmore Hospital staff and the Infection Control Team were under pressure, systems were in place to support the peak. Staff coped very well with this surge in activity and were publicly thanked by the Chief Operating Officer for all their hard work.

8 **Progress on compliance with national HAI programme**

8.1 RAG status on HAI Action Plan

	Actions
PURPLE (complete)	21
GREEN (on track to complete by the deadline)	1
AMBER (substantially complete but either awaiting national materials or with some possibility of slippage beyond the deadline)	1
RED (unable to complete by the deadline)	1

8.2 Compliance with HAI Task Force programme – outstanding issues

- Implement the recommendations with Senior Charge Nurse Review.
- Healthcare Associated Infection System for Controlling Risk in the Environment (HAI SCRIBE) – Awaiting National guidance regarding existing buildings.
- NHS Board policy / guidance on completing death certificates reviewed in include documenting death associated with HAI.

8.3 Actions required and timescales for implementation

- Implement the recommendations in the Senior Charge Nurse Review. This is currently on target for completion by January 2010.
- HAI SCRIBE will be applied to existing buildings following modification of question set by the estates working group hosted by Health Facilities Scotland. Implementation by January 2010.
- Death Certificate completion – new revised National guidance implemented, training for Doctors underway.

9. **Antimicrobial Prescribing**

9.1 Antimicrobial Quality Prescribing Indicators.

- Data on hospital based empiric prescribing of antibiotics is being collected in the acute medical admissions unit and ward 4A (surgical admissions) in Raigmore Hospital. SPSP methodology is used by sampling five patients each week and auditing compliance with empiric prescribing guidelines in these areas. The data

from October and November has been fed back to the clinical teams with an improvement seen. Data from November show compliance at 75% with a target of 95% to be achieved by March 2011.

- Partnership working with the SPSP team is being investigated to support data collection for the surgical antibiotic prophylaxis indicator. The Scottish Antimicrobial Prescribing Group (SAPG) has recently provided additional information on this indicator in choosing appropriate clinical areas and this will be taken forward.
- The Primary Care indicator on seasonal quinolone prescribing continues to be met in NHS Highland following the publication of the most recently available PRISMS data. Data from October 08 to September 09 shows seasonal variation in quinolone use of 4.5%. The target is 5%.

9.2 Antimicrobial Prescribing Audits

- Data collection has commenced for Scottish National Audit Project for Community-Acquired Pneumonia (SNAP-CAP).
- Point Prevalence Surveys of Antimicrobial Use. Following the NHS Highland-wide survey in June 2009 (ESAC), a rolling programme of smaller audits has begun. A survey of prescribing in the general surgery wards in Raigmore in November showed 27% of patients prescribed antibiotics with 90% of prescribing assessed as appropriate, an increase from 79% in June 2009. Further small audits are planned for the orthopaedic wards and medical wards in Raigmore and MacKinnon Memorial Hospital.

9.3 Management of Infection Guidance

Sections of the guidance continue to be updated on a rolling basis. Recently, the sections on antibiotic treatment of respiratory tract infections, skin and soft tissue infections and diabetic foot infections have been updated.

9.4 Antimicrobial Utilisation Data

- Data showing the use of preferred agents vs. those associated with CDI is now available down to directorate level in Raigmore. Data to the end of November 2009 shows preferred agents being used more than CDI agents in both medical and surgical directorates. Work ongoing with the other hospitals.
- Use of 'alert' or restricted agents continues to be scrutinised by clinical pharmacists prior to supply. The use of these agents is further monitored by the utilisation data, showing low levels of prescribing across Raigmore, Belford and Caithness General Hospitals.

9.5 Education on Antimicrobial Prescribing

The most recent edition of 'The Pink One' which is distributed widely across NHS Highland to all prescribers was given over solely to antibiotics. Articles included:

- What's new in respiratory tract infection treatment
- Prudent use of antibiotics for self-limiting upper respiratory tract infection in primary care (sore throat, acute cough, acute sinusitis)
- Treating urinary tract infections caused by highly resistant organisms

- Recent formulary updates
- Results of the empiric prescribing audits in acute admission areas in Raigmore
- Information on the forthcoming SNAP-CAP audit.

10. Decontamination

Work is progressing with the development of local decontamination units to process dental and podiatry instruments. This will allow all of the managed services to be compliant with the mandatory NHS Scotland standards by the end of March 2010. This will complete the Boards investment of £1.7m in local decontamination facilities in Primary Care.

The Chief Dental Officer has asked the independent dental practitioners to advise Health Boards of their position with regard to compliance with the NHS Scotland decontamination standards. This information was submitted by the end of December 2009 and is being analysed. It will be used to form an action plan for the independent sector to bring their decontamination facilities and practice up to the required standard.

Acronyms

AMT	Antimicrobial Management Team
AOBD	Acute Occupied Bed Days
CDAD	<i>Clostridium difficile</i> Associated Disease
CDI	<i>Clostridium difficile</i> Infection
CVC	Central Venous Catheter
HAI	Hospital Associated Infection
HAI SCRIBE	Healthcare Associated Infection System for Controlling Risk in the Environment
HEAT	H ealth Improvement; E fficiency; A ccess to Services; T reatment appropriate for patient
HH	Hand Hygiene
HFS	Health Facilities Scotland
HPS	Health Protection Scotland
MRSA	Meticillin resistant Staphylococcus aureus
MSSA	Meticillin Sensitive Staphylococcus aureus
PPE	Personal Protective Equipment
PVC	Peripheral venous catheter
PRAG	P urple, R ed, A mber, G reen
QIS	Quality Improvement Scotland
SAB	Staphylococcus aureus bacteraemia
SGHD	Scottish Government Health Directorate
SPSP	Scottish Patient Safety Programme
SSI	Surgical Site Infection

NB data are provisional and may change

	Activity	Board Total	Acute Hospital																Community Hospitals																Staff Group			
			Rainydale, Inverness	Cairness General	Belford, Fort William	Loch Islands, Oban	Dunbar, Thurso	Town & County, Wick	Lawson Memorial, Gokspie	Migdale, Airdgry	R.N.I., Inverness	Town & County, Nairn	Ian Charles, Grantown	St Vincent's, Kingussie	Dr Mackinnon Memorial, Skye	Portree, Skye	Ross Memorial, Dingwall	Invergordon	New Craig, Inverness	Dunoon	Campbelltown	Argyll & Bute, Lochgilblhead	Mid Argyll Community, Lochgilblhead	Islay	Victoria Infirmary, Helensburgh	Victoria, Isle of Bute	Victoria Annex, Isle of Bute	Duneros, Mull	Nurse	Medical	Allied Health Professionals	Ancillary/other						
	BOARD TOTAL																																					
1	Staph.aureus bacteraemias																																					
	SAB numbers December 09	2	2																																			
	SAB numbers November 09	9	8									1																										
	Mean monthly SAB November 08 - October 09	5.58																																				
	MRSA numbers December 09	0																																				
	MRSA numbers November 09	2	2																																			
	MSSA numbers December 09	2	2																																			
	MSSA numbers November 09	7	6									1																										
2	Cdifficile associated disease																																					
	CDAD episodes December 09	6	4	1								1																										
	CDAD episodes November 09	6	2									2	1				1																					
	Mean monthly CDAD November 08 - October 09	13.92																																				
<p>Note 1: The CDAD figures do not include GP Practices. The Mean Monthly figure is calculated on hospital cases only.</p>																																						
3	Cleaning specification compliance																																					
	Compliance Rate (November, December,09)	94.75	93	95.8	92.6	94.7	97.5	95.5	97.1	97.5	92.5	97.4	97.2	95.6	96.6	95.1	91.7	92.4	97.2	95.7	93.2	95.6	96.5	91.2	97.5	93.2	95.6	96										
	Noof items Inspected (November, December,09)	85953	10113	5956	3540	6223	786	1417	2434	376	2294	3149	1342	1611	2728	1070	777	4088	9545	3108	8180	4344	4282	1257	2463	2886	1666	318										
	Compliance Rate (September, October,09)	95.4	94.9	97.7	95.2	94.6	93.7	98.5	96.7	95	90.8	96.1	97.8	94.1	96.6	97.7	93.5	92.4	97.5	95.5	93.1	96.1	97.8	91.2	98.1	93.5	92	89										
	No of Items Inspected (September, October,09)	102228	26436	6220	3010	6243	634	1812	2101	1618	2588	3656	1026	2042	3257	2515	1868	3684	9809	2202	5281	4703	4609	1236	2971	2393	NR	314										

