DIRECTOR OF INFECTION, PREVENTION AND
CONTROL (D.I.P.C.)

ANNUAL REPORT

INFECTION, PREVENTION & CONTROL

2012/2013
CONTENTS

1.0 Executive Summary

2.0 Infection Prevention & Control Arrangements
   2.1 Infection Prevention & Control Team (IPCT)
   2.2 Infection Prevention & Control and Environmental Hygiene Committee (IPCEHC)
   2.3 Reporting line to the Trust Board

3.0 Infection Prevention and Control Trust Stakeholders
   3.1 Environmental Hygiene and Food Safety Committee
   3.2 Decontamination Group
   3.3 Estates Services

4.0 HCAI Targets

5.0 Healthcare Associated Infections
   5.1 Meticillin Resistant Staphylococcus aureus (MRSA)
   5.2 Meticillin Sensitive Staphylococcus aureus (MSSA)
   5.3 Clostridium difficile
   5.4 Pseudomonas aeruginosa
   5.5 Norovirus Outbreaks
   5.6 Legionella

6.0 Antimicrobial stewardship
   6.1 Antibiotic Policy
   6.2 Use of High, Medium and Low Risk Antibiotics
   6.3 Antimicrobial Audit results
   6.4 Publications and other activities

7.0 Hand Hygiene
   7.1 Clean Your Hands Campaign
   7.2 Hand Hygiene Audits

8.0 Saving Lives

9.0 Audit
   9.1 Regulation and Quality Improvement Authority (RQIA) Audits
   9.2 IPCT Audits
   9.3 Commode/Mattress Audits

10.0 Policy Review

11.0 Training & Education

12.0 Other Infection Prevention & Control Initiatives
   12.1 RCA Process
   12.2 IPC & Corporate Communications Department
   12.3 Infection Prevention and Control in the Built Environment
   12.4 On-Call Rota

13.0 Conclusion
1.0 Executive Summary

This report outlines a summary of the key infection prevention and control initiatives and activities of the Trust for the year April 2012 to March 2013. It also provides an assessment of performance against regional targets for this year.

Infection, Prevention and Control remains a Trust priority and the programme of activities developed to reduce infection rates has been implemented and maintained. Work has continued to achieve compliance with the following:

- The Quality Standards for Health & Social Care DHSS&PS 2006
- Saving Lives High Impact Interventions (DH, 2007)
- Environmental Cleanliness Standards DHSS&PS 2005
- Controls Assurance Standard for Infection Control DHSS&PS 2009
- Changing the Culture, Strategic regional action plan for the prevention and control of healthcare-associated infections in Northern Ireland, DHSSPS 2010.

During the year hospital cleanliness in the Trust was subject to inspection by the Regulation Quality Improvement Authority who assessed all Trusts.

The Trust’s self assessment against the controls assurance standard for infection prevention and control was compliant at 95%.

The Trust maintained a continuing high focus on reducing the incidence of Healthcare Associated Infections (HCAlS). Unfortunately, despite this focus, the Trust was not able to meet its PFA target in relation to either MRSA bacteraemia or Clostridium difficile infection but it did achieve further significant reductions in the incidence of both infections.

The Trust has considered NICE Guidance, Prevention and control of healthcare-associated infection, NICE public health guidance 36, continued training and assessment of compliance with Aseptic Non Touch Technique in the management of peripheral lines and continued emphasis on compliance with High Impact Interventions and delivering clean and safe care.

The Infection Prevention and Control Nurses continued validation of Care Bundles with respect to the Management of Clostridium Difficile, Peripheral Line Management, Urinary Catheter Care and Hand Hygiene

A number of challenges in relation to infection prevention and control continued into 2012/13 most notably in May 2012, the Independent Review of Incidents of Pseudomonas aeruginosa Infection in Neonatal Units in Northern Ireland was published.

In overall terms the Trust has continued to make continued significant progress in Infection Prevention and Control during 2011/12 and remains fully committed to maintaining this progress during 2012/13.
2.0 Infection Prevention & Control Arrangements

The Infection Prevention and Control Strategy was launched in September 2010 and is due to be reviewed in September 2013. It was developed to ensure that the Trust has effective infection control arrangements in place to protect patients, visitors and staff.

Two core principles from the Regional Changing the Culture Strategy are that infection prevention and control is an integral part of safe effective care and that infection prevention and control is everybody’s business (Department of Health, Social Services and Public Safety – DHSSPS 2010).

The NHSCT Strategy provides an overview of key principles and objectives which identifies how the Trust will meet current and future demands for quality standards by minimizing risk and integrating IPC into core business.

The Trust’s IPC objectives are:
   i) To deliver high quality, evidence based treatment and care.
   ii) To provide a safe and clean environment for treatment and care.
   iii) To establish timely and effective HCAI surveillance programmes and systems to identify trends, investigate clusters and adverse incidents and to share learning.
   iv) To ensure all staff are aware of their responsibility and accountability for the prevention and treatment of healthcare associated infection.
   v) To ensure the public have confidence in the care setting and the quality of treatment and care provided.
   vi) To ensure safe and appropriate prescription of antibiotics.

The 40 operational Directorates are responsible for implementing IPC policy and performance manage infection control outcomes in their service areas through the development of Directorate Delivery Plans which feed into the Corporate Plan on a quarterly basis.

The Trust IPC Delivery Plan will deliver on the objectives over a three year period, September 2010 – September 2013 when it will be reviewed in line with regional and national strategies for Infection Prevention and Control.

2.1 Infection Prevention & Control Team (IPCT)

The Infection Prevention and Control Team consists of:

- 1.0 WTE Infection Prevention & Control Lead Nurse
- 4.0 WTE Senior Infection Prevention & Control Nurses (Band 7)
- 4.52 WTE Infection Prevention & Control Nurses (Band 6)
- 1.0 Consultant Medical Microbiologist
- 0.3 Control of Infection Doctor
- 1.48 WTE Anti-Microbial Pharmacist
The IPC team remains accountable to the Director of Infection Prevention and Control (DIPC) for the I.P.C. Service.

2.2 Infection Prevention Control and Environmental Hygiene Committee (IPCEHC) –

The Trust’s Infection Prevention Control and Environmental Hygiene Committee (IPCEH) is responsible for developing a strategic and integrated approach to achieving high standards of infection prevention control and environmental cleanliness practice to reduce health care acquired infections (HCAIs) as far as possible.

During 2012/13, the Chief Executive chaired the Strategic IPC Forum to maintain an executive level focus on HCAI, the IPCEH Committee reports to the Strategic Forum.

2.3 Reporting line to the Trust Board

The Director of Infection Prevention & Control (DIPC) is an Executive Director of the Board, member of the Senior Management Team, Governance Committee and Trust Board. The Board is kept informed of the Trusts performance in relation to Infection Prevention & Control by receiving:

- Monthly HCAI performance dashboard
- Annual report
- Corporate Delivery Plan

3.0 Infection Prevention and Control Trust Stakeholders

3.1 Environmental Hygiene and Food Safety Committee

The Trust recognizes that hospital cleanliness is a vital ingredient in the fight against Health Care Acquired Infections.

In 2012/13 the Acute and Community Hospitals/Facilities retained high cleaning standards within wards and departments achieving and in some cases exceeding the DHSSPS 85% compliance score.

To ensure cleaning standards are maintained, daily, and monthly environmental cleanliness audits are carried out in wards and departments.

In addition to these audits and, as a means of verification of the departmental audits, Annual managerial audits are carried out by a team consisting of infection control, domestic services, nursing, and estates services personnel. The new Regional Healthcare, Hygiene and Cleanliness Audit tool is now used for these annual audits. Action plans and follow up visits/audits are also a fundamental part of the auditing process. Audit results are reported to the Trust Board, Senior Management Team and to the Infection Prevention Control and Environmental Hygiene committee on a monthly basis with any deficiencies in standards being identified for improvement.
As a means of enhancing the daily ward cleaning process and accepted by the Infection Control Team as good practice in reducing HCAIs, a twice yearly intensive cleaning programme of wards exists in the Trust’s hospitals.

A multi-disciplinary approach to cleaning has been created whereby domestic services staff using specialist equipment, nursing and estates services staff work together to thoroughly clean ward areas after decant of patients.

Domestic services staff receive infection control training as part of their induction and existing staff receive refresher training at least once every two years.

Domestic services management and the Infection prevention and control team work in partnership to reduce the incidence of HCAIs in Trust Hospitals and facilities and are members of hospital cleaning focus groups. This ensures that patients are cared for in a safe and clean environment.

Following the regional Pseudomonas aeruginosa outbreak, interim guidance was issued to the Trust from the PHA in relation to sink and tap cleaning in Augmented Care Areas including the Neonatal Units.

Domestic Services Management were involved along with other NI Trusts, the PHA and DHSSPS staff in the development of final guidance on cleaning of sinks and taps in clinical areas.

Domestic Services have now implemented the new 4 step cleaning regime for sinks and taps in these areas.

The Minister of Health also requested that new specialist Hygiene and Infection Control Audit tools for Augmented Care Areas be developed following the Pseudomonas Aeruginosa outbreak in NI Trusts. A Domestic Services representative from the NHSCT was a member of the group led by the RQIA to develop and trial the audit tool before issuing to Trusts.

The Environmental Cleanliness and Food Safety Committee met on the 21st March, 4th July, 10th September and the 6th December 2013.

At each of the meetings the committee reviewed the results of the Cleanliness Matters Audits, Infection Control Audits, RQIA Reports and Action Plans, Food Safety Audits and Controls Assurance Standards.

There was also a major focus on the “Dump the Junk” Initiative in place across the Trust.

The committee also monitored the Estates planning programme in relation to the patient environment and highlighted areas where estates issues were impacting on the ward environment results in the RQIA reports.

Food Hygiene and Ward Kitchen policies have been prepared and approved by the Trust’s Policy Committee.
Staff Training and Development programmes for Support Services staff continue to be recommended. The Trust is now an accredited training centre for the British Institute of Cleaning Science training for Domestic Services staff.

The committee continued to support the Food Safety Awareness training for non catering staff which is now in place for both Acute and Community staff involved in handling patient/client food.

3.2 Medical Devices and Decontamination Committee

The Medical Devices and Decontamination Committee have now been merged to form an overarching group with sub-committees looking at disposable medical devices (the Clinical Procurement Advisory Group) and clinical capital purchases (the Medical Devices and Clinical Capital Scrutiny Group).

Business cases are being reviewed in respect of both podiatry and dental decontamination following which discussions will be held with HSCB in relation to the revenue consequences of the service. In the interim, pending the implementation of the new decontamination processes in these areas, procured business case will be developed in respect of new bench top sterilisers. In addition, some further enhancements to the HSDU Department will also be sought in conjunction with advice from HEIG.

Additional scopes to increase the complement available within the Trust were purchased from the clinical capital allocation during the year.

3.3 Estate Services

IPC QA Audits – Estates continue to work with ward managers and department heads to ensure that Estates actions are completed.

Senior Estates staff attend all Patient Environment Leadership walkabouts with IPC, Nursing & Support Services staff.

The IPC Team continue to provide input and expert advice into all new building and refurbishment projects.

Estate Services is committed to improving the level of water safety compliance as set down in the Health and Safety Executive’s approved code of practice L8 and Health Technical Memorandum (HTM) 04-01. Trust Board approved the 2013 Annual Action Plan for Water Management at their September 2012 meeting and a review of the action plan was presented to Trust Board in November 2013.

The Trust Water Safety Group which held their inaugural meeting in June 2012, chaired by Assistant Director of Estates, continues to meet quarterly. The Terms of Reference of this group, which is a sub group of the Infection, Prevention, Control & Environmental Hygiene Committee (IPCEH) is attached. The HTM 04-01 Addendum: Pseudomonas aeruginosa –
advice for augmented care areas which was published in England in March 2013 has been adopted by DHSSPS in February 2014.

**Control of Pseudomonas Aeruginosa**

Comprehensive water sampling and testing for Pseudomonas is in place in all augmented care areas as detailed in HSS (MD) 16/2012. All augmented care areas, with the exception of C7, are on a 6 monthly testing schedule. The control measures in place are currently successful as a high percentage of these 6 monthly tests meet the stringent parameters of zero cfu /100 mls, without further remedial work and re-test.

The new C7 24 bedroom ward, which was not specified as an augmented care area at tender stage, had 50% failure on the Pseudomonas test results on the hot & cold water outlets when the building was handed over. Only 8 of the ensuite bedrooms met the augmented care water specification. Remedial works and water testing has been carried out in C7 and the current situation is that 18 ensuite bedrooms meet the augmented care specification. Further work is ongoing including the 6 monthly trialing of a biocide dosing system which commenced in November 2013.

An important element in the control of Pseudomonas aeruginosa is regular flushing of hot & cold water taps and showers. Corporate Support Services have a daily flushing and recording routine in augmented care areas.

An IPT submission was made to DHSSPS for additional funding to manage the control of Pseudomonas, including the resources identified by Estates Services in the 2013 annual action plan. Funding was agreed by the Department which was eventually received by the Trust in October 2013. This has delayed the appointment of staff as identified in the Action Plan Programme Summary review.

DHSSPS letter (ref WS/2013/01) dated 31st Jan 2013, requested an independent validation and report relating to the establishment of systems and processes for water management relating to Pseudomonas aeruginosa. Envirocloud, who are water quality specialists within Healthcare, were commissioned to carry out an audit and provide an independent validation report. This report, which was sent to DHSSPS on 31st May 2013, did not identify any breaches of compliance in Augmented Care areas thus providing the independent valuation required.

**4.0 HCAI Targets**

The Annual Target for Clostridium difficile in 2012/13 was 59 cases aged 2 years and over.

The Cumulative position at 31st March 2013 was 80 cases. Whilst this position did not meet the target it was a reduction of over 14% in the number of cases in comparison to 2011/12.

The Annual Target for MRSA bacteraemia in 2012/13 was 12 cases.
The Cumulative position at 31st March 2013 was 13 cases. Whilst this position did not meet the target it was a reduction of over 31% in the number of cases in comparison to 2011/12.

The HCAI performance target for 2012/13 did not include MSSA bacteraemia. However, surveillance of MSSA bacteraemia remained mandatory during 2011/12 and all MSSA infections were recorded on the web based surveillance system and through laboratory reporting.

5.0 Healthcare Associated Infections - Alert Organisms

The Trust reports the following Healthcare Associated Infection (HCAI) statistics to the Public Health Agency:

- Meticillin Resistant *Staphylococcus aureus* (MRSA) bacteraemia
- *Clostridium difficile*

Trust surveillance data on MRSA, MSSA and *Clostridium difficile* is reported to the Public Health Agency (PHA) through the HCAI web based surveillance system every month.

The PHA issues the Trust with a monthly report showing the NI and NHSCT cumulative total against the monitoring trajectory for each organism.

The Infection Prevention Control and Environmental Hygiene Committee receives monthly surveillance data at each meeting; this is on a performance table with data on compliance with High Impact Interventions and Environmental Cleanliness.

The same information is presented to Trust Board monthly and members have the opportunity to question the Director of Infection Prevention and Control (D.I.P.C.) on performance.

5.1 Methicillin Resistant *Staphylococcus aureus* (MRSA)

Mandatory surveillance of *Staphylococcus aureus* bacteraemia has been in place since March 2008. The Trust is required by the DHSSPS to report all MRSA positive blood cultures that have been identified by the Trust’s Microbiology Department.
The graph below shows the reduction in the number of MRSA bacteraemia cases year on year in Trust since 2008.

The following graph shows the monthly incidence of MRSA bacteraemia for years 2012/13.

All cases of MRSA bacteraemia are investigated by a multi-disciplinary Root Cause Analysis (RCA) process. These are undertaken within Directorates Clinical Teams with
support from the Infection Prevention and Control (IPC) team and any relevant supporting services

The outcome of ward based RCAs are reviewed by the Senior Director, Director of Nursing and the Medical Director, and where themes and learning are identified, these are shared throughout the organisation. These findings help to inform review of IPC and other related policies and guidance. If the cases merits reflection of any community based healthcare interventions then members of those teams are also included in the RCA process to ensure local learning

5.1.1 Peripheral Intravenous Line Champion

Following on from last year’s review of MRSA bacteraemia cases, the Trust has developed the role of an Intravenous (IV) Peripheral Line Champion who is an experienced Senior Infection Prevention Control Nurse (IPCN) seconded to project manage and drive improvement in clinical practices associated with peripheral intravenous line insertion and on-going care. The project plan has focused on the following priority areas:

- Review procedure for blood cultures collection and contamination rates;
- Review Training for Blood Culture collection for medical and nursing staff;
- Plans to introduce Peripheral IV cannulation pack and introduce competency assessment for peripheral line management and standardise of IV peripheral line products;
- Update the Visual Phlebitis (VIP/Jackson Score) sheet;
- Review and update MRSA Screening policy for inpatients within the Trust in line with Best Practice Guidelines from Department of Health;
- Update and review suppression and decolonisation therapy for known MRSA patients.

5.2 Methicillin Sensitive Staphylococcus aureus (MSSA)

During 2012/2013 the Trust continued to monitor and report the number of bacteraemia cases caused by MSSA, which can be found commonly in the general population.

5.3 Clostridium difficile

As previously mentioned, the Annual Target for 2012/2013 was 59 cases aged 2 years and over. The cumulative position as at 31st March 2012 was 80 episodes: whilst this did
not meet the PFA target it was a reduction in the incidence of Clostridium difficile infections of over 14% in comparison to 2011/12.

During 2012/13, the Trust, through its IPC Corporate Delivery Plan, continued to work towards a reduction in the incidence of Clostridium *difficile* infections through active promotion of good infection control practices, early isolation of new cases, high standard of environmental cleanliness and careful use of antibiotics. This work is ongoing in 2013/2014.

The graph below shows the reduction in the number of cases of Clostridium *difficile* infections year on year in Trust since 2008.

The following graph shows the monthly incidence of Clostridium *difficile* infections for years 2012/13.
All cases of *Clostridium difficile* infections are investigated by a multi-disciplinary Root Cause Analysis (RCA) process.

The outcome of these RCAs are reviewed by the Senior Director, Director of Nursing and the Medical Director, and where themes and learning are identified, these are shared throughout the organisation.

On 28th December 2012 our surveillance showed an increase in the cases of CDI in a ward. Review of the available RCA data and available ribotyping indicated that there was potentially two transmission episodes linking 3 of the 4 cases. Transmission was most likely exacerbated due to the high dependency and complexity of the source case. This incident highlighted the difficulty in isolating a patient requiring this level of care on a busy ward.

The review of these cases also highlighted a possible correlation between antimicrobial use and an increase in cases. Immediate measures to control any further transmission were put in place, including deep cleans of the affected ward and antimicrobial rounding.

Throughout the Trust on-going interventions include:

- Annual review of the antimicrobial policy is now undertaken and specialist services have guidelines specific to their services
- Antimicrobial rounding by microbiologists in liaison with Ward Consultants in medical and augmented care areas
- Continued active promotion of good infection control practices, early isolation of new cases, high standard of environmental cleanliness
- A continuous programme of training for staff which includes risk assessment and management of patients with diarrhoea using Infection Risk Assessment Tool (developed by the IPC Team). This also involves daily liaison with Patient Pathway Teams
- Annual programme of monitoring of antimicrobial prescribing is undertaken including use of high risk antibiotics
- The Trust recognises that hospital cleanliness is a vital ingredient in the fight against Health Care Associated Infections (HCAIs) including *C. difficile*. Results of unannounced inspections by RQIA, show that the Northern Trust Hospital hygiene standards are amongst the highest in the region
- Domestic services management and the IPC team work in partnership to reduce the incidence of HCAIs in Trust Hospitals and facilities and are members of hospital
cleaning focus groups. This ensures that patients are cared for in a safe and clean environment.

- Rapid Response teams promptly respond to full bay cleans undertaken after relocation of any identification of C Difficile or viral diarrhoea cases.

5.4 Pseudomonas aeruginosa

Following on from the publication of HSS (MD) 16/2012, control of *Pseudomonas aeruginosa* in augmented care units and those units caring for level 1 to 3 babies has been on-going. Risk assessments were completed on all augmented care areas and remedial actions taken where *Pseudomonas* was found in the water supply. *Pseudomonas aeruginosa* was added to the list of alert organisms within the Trust and the microbiology service took an active role in the surveillance of clinical cases in both neonates and adults with PHA colleagues, including typing the isolates through the Regional Virus Laboratory in Belfast.

Throughout the year there were a small number of cases of blood stream infection in adults and none in neonates. Of those blood stream infections none were linked to water from within the Trust or transmission from another patient within the Trust. There were a small number of cases of colonisation in neonates identified within the same period. Of these none were linked to water from within the Trust and only one episode of transmission was detected. The transmission episode was between two twins and therefore was felt to be unavoidable.

5.4.1 Microbiology monitoring of water outlets in augmented care areas and NNUs

Microbiological monitoring continues in accordance with HSS (MD) 16/2012 and is overseen by the Trust Water Safety Group. Most areas have water testing on a maintenance basis every six months as they have been shown to be clear of colonisation repeatedly. Work is still going on within Ward C7 to clear persistent colonisation with the result that only part of the ward can be used for augmented care patients. Whilst this is a new build, the complexity of the plumbing system has posed challenges to the remedial actions required.

5.4.2 Patient screening for detection of *Pseudomonas aeruginosa*

Admission and weekly screening of all babies in the NNU for the detection of *Pseudomonas aeruginosa* was commenced on 24/1/2012 and continues in accordance with guidance.
5.5 Norovirus Outbreaks

All outbreaks in Trust acute and community facilities are reported immediately to the Public Health Agency Duty Room, followed by daily update reports.

There were a total of 10 wards in Antrim hospital affected probable/actual Norovirus outbreaks in the Trust Acute facilities from April 2012- March 2013. The outbreak of Norovirus in Antrim hospital during May 2012 affected five wards and was successfully controlled after thirteen days.

There was daily liaison between the wards, the IPC Nursing Team and Patient-Flow Coordinators to ensure compliance with all control measures and appropriate isolation/cohorting of patients.

- Strict adherence to cohort/isolation precautions e.g., hand hygiene and use of Personal Protective Equipment;
- Enhanced cleaning of ward and toilet areas by Hotel Services;
- Enhanced cleaning of equipment e.g., commodes;
- Restriction of patient transfers from active/exposed wards or areas;
- Restriction of visitors;
- Daily update to PHA duty room;
- Regular updates to Director of Infection Prevention and Control.

Trust Community Facilities also experienced five outbreaks of diarrhoea and vomiting during 1st April 2012 to 31st March 2013.

IPC Nurses in partnership with the PHA gave advice and support to Community Facilities. Outbreak meetings were not convened but daily contact by the Community IPC Nurse was made by telephone and/or clinical visits. Additionally the IPC Nursing Team and IPC Nurse responsible for the Independent Sector also supported a number of outbreaks in collaboration with PHA.

See tables below which provide summaries of NHSCT Outbreaks.
### Acute Facilities

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Ward</th>
<th>Date on onset</th>
<th>Date declared over</th>
<th>Total number of days</th>
<th>Total number ACTIVE</th>
<th>Total number EXPOSED</th>
<th>Number of staff AFFECTED</th>
<th>Organism isolated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antrim</td>
<td>B1</td>
<td>6/5/12</td>
<td>14/5/12</td>
<td>9</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>3 patients tested positive for Norovirus</td>
</tr>
<tr>
<td>Antrim</td>
<td>B2</td>
<td>9/5/12</td>
<td>14/5/12</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>0</td>
<td>2 patients tested positive for Norovirus</td>
</tr>
<tr>
<td>Antrim</td>
<td>C4</td>
<td>9/5/12</td>
<td>21/5/12</td>
<td>13</td>
<td>14</td>
<td>7</td>
<td>7</td>
<td>2 patients tested positive for Norovirus</td>
</tr>
<tr>
<td>Antrim</td>
<td>A1</td>
<td>9/5/12</td>
<td>16/5/12</td>
<td>8</td>
<td>2</td>
<td>7</td>
<td>1</td>
<td>0 patients tested positive for Norovirus</td>
</tr>
<tr>
<td>Antrim</td>
<td>A4</td>
<td>9/5/12</td>
<td>16/5/12</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>2</td>
<td>0 patients tested positive for Norovirus</td>
</tr>
<tr>
<td>Antrim</td>
<td>B3/CCU</td>
<td>01/11/2012</td>
<td>09/11/2012</td>
<td>9</td>
<td>18</td>
<td>13</td>
<td>3</td>
<td>0 patients tested positive for Norovirus</td>
</tr>
<tr>
<td>Antrim</td>
<td>B4</td>
<td>03/11/2012</td>
<td>08/11/2012</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0 patients tested positive for Norovirus</td>
</tr>
<tr>
<td>Antrim</td>
<td>C2</td>
<td>30/12/2012</td>
<td>03/01/2013</td>
<td>5</td>
<td>3</td>
<td>8 mums 5 babies</td>
<td>0</td>
<td>0 patients tested positive for Norovirus and minimal specimens obtained.</td>
</tr>
<tr>
<td>Antrim</td>
<td>A4</td>
<td>11/03/13</td>
<td>15/03/13</td>
<td>5</td>
<td>5</td>
<td>15</td>
<td>3</td>
<td>0 patients tested positive for Norovirus</td>
</tr>
<tr>
<td>Antrim</td>
<td>A3</td>
<td>11/03/13</td>
<td>15/03/13</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0 patients tested positive for Norovirus</td>
</tr>
</tbody>
</table>
There is a programme in place for the control of Legionella on all Trust premises. This is managed using a risk based approach with the application of available resources in risk rank order. Risk assessments are currently up to date for all Trust facilities. The £200k MES funded work for the control of legionella in 2012/13 was completed. MES funded schemes for 2013/14, value £200k, are underway with target completion by March 2014. The quantum of remedial action depends on the level of water contamination, age and design of the systems.

The more comprehensive regime of water sampling for Legionella, which was recommended by HSE, has been implemented. Random quarterly samples collected from showers and hot & cold water taps in Trust owned facilities are tested on a quarterly basis. Where results are outside the specification, remedial action and retesting is required. The test results has identified that Legionella control in Holywell Hospital cannot be sustained by a temperature control regime. A business case has been approved for the installation of biocide dosing systems for Holywell Hospital by March 2014.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Date on onset</th>
<th>Date declared over</th>
<th>Total number of days</th>
<th>Total number ACTIVE</th>
<th>Total number EXPOSED</th>
<th>Number of staff AFFECTED</th>
<th>Organism isolated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moylinney EMI</td>
<td>30/10/12</td>
<td>09/11/12</td>
<td>11</td>
<td>18</td>
<td>27</td>
<td>9</td>
<td>All samples were Norovirus Neg.</td>
</tr>
<tr>
<td>Greenisland House</td>
<td>31/10/12</td>
<td>10/11/12</td>
<td>11</td>
<td>12</td>
<td>21</td>
<td>9</td>
<td>Norovirus confirmed</td>
</tr>
<tr>
<td>Pinewood Residential Home</td>
<td>04/11/12</td>
<td>9/11/12</td>
<td>6</td>
<td>14</td>
<td>24</td>
<td>15</td>
<td>3 Norovirus confirmed</td>
</tr>
<tr>
<td>Clonmore Residential Home</td>
<td>12/11/12</td>
<td>28/11/12</td>
<td>16</td>
<td>15</td>
<td>29</td>
<td>2</td>
<td>All samples were Norovirus Neg.</td>
</tr>
<tr>
<td>The Brook</td>
<td>22/12/12</td>
<td>29/12/12</td>
<td>7</td>
<td>6</td>
<td>16</td>
<td>2</td>
<td>Samples neg</td>
</tr>
<tr>
<td>The Roddens</td>
<td>22/02</td>
<td>27/02/12</td>
<td>6</td>
<td>6</td>
<td>13</td>
<td>1</td>
<td>Samples neg</td>
</tr>
<tr>
<td>Tardree 1 Holywell</td>
<td>19/12/12</td>
<td>28/12/12</td>
<td>10</td>
<td>14</td>
<td>11</td>
<td>6</td>
<td>Samples neg</td>
</tr>
</tbody>
</table>
6.0 Antimicrobial Stewardship

6.1 Antibiotic Policy

During 2009/2010 the Trust’s Consultant Microbiologists and Antimicrobial Pharmacists worked with a regional group to develop a revised regional anti-microbial prescribing framework that was introduced in the NHSCT in August 2010 and updated August 2011. This policy sought to reduce the usage of co-amoxiclav across the region. For 2012/13 this policy continued to be used across all Trust sites and adherence to policy monitored with antimicrobial stewardship audits. In June 2012 a series of antibiotic ward rounds in areas with high antibiotic use were introduced, led by a Consultant Medical Microbiologist, with support from the antimicrobial pharmacy team. This allowed immediate feedback on audit findings and ensured engagement of senior clinical staff, leading to an increase in adherence to policy and a collaborative approach to the management of infections.

Using this data and data from independent observations, the antimicrobial pharmacists produce an antimicrobial prescribing report on a quarterly basis to support directorates and clinical teams in monitoring trends in antimicrobial prescribing and in evaluating the impact of initiatives that have an effect on antimicrobial prescribing.

Antibiotic usage is monitored monthly and is expressed as number of defined daily doses (DDDs) per 100 occupied bed days.

Antibiotics are split into three risk groups (high, medium and low), depending on the risk of causing Clostridium difficile- Associated Diarrhoea.

6.2 Use of High, Medium and Low Risk Antibiotics in NHSCT

The pharmacy computer system changed regionally from the PIL system to JAC in June 2012. Work is on-going on automating conversion of antibiotic usage into DDDs within JAC.

Since June 2013 data has been collated manually on antibiotic use for Antrim hospital. The unit of measurement of antibiotic use is the Defined Daily Dose (DDD) which is the assumed average maintenance dose per day for a drug used for its main indication in adults. The DDD is a unit of measurement and does not necessarily reflect the recommended or prescribed daily dose. Drug consumption expressed in numbers of DDDs will only give a rough estimate of consumption and not an exact indication of drug use; however it does allow comparison of antibiotic use across Health and Social Care Trusts in Northern Ireland and the rest of the UK (WHO, 2011).

In order to adjust for bed occupancy antibiotic use is expressed as the number of DDDs per 100 occupied bed days. Bed occupancy data was obtained from the Corporate Information Department.
Figure 1: Use of High Risk Antibiotics in Antrim Hospital
As expected the use of high risk antibiotics remain low. Co-amoxiclav and Carbapenem use remains stable with an increasing trend in use of Macrolides and Amoxicillin which would be in keeping with policy recommendations.

6.3 Antimicrobial Audit Results

Ongoing audits carried out across the NHSCT on antibiotic use include the audit measuring adherence to the empirical antibiotic guidelines for adults. This audit is carried out by pharmacy staff on a weekly basis where data is collected on a sample of five patients on antibiotics in each adult ward in Antrim, Mid-Ulster, Whiteabbey and Causeway Hospitals. Maternity and psychiatric wards are excluded. This audit provides a snapshot of what antibiotics are prescribed across the NHSCT for various indications. In some cases antibiotic therapy is not empirical, whereby patients have had previous failed antibiotic courses both in hospital and in primary care and in other cases antibiotics are prescribed based on sensitivity results or as per microbiology advice. In these cases the use of antibiotics is classified as appropriate non-adherence and are included in adherence figures. In some cases there is uncertainty over the diagnosis or there is insufficient information in the case notes to assess adherence, therefore these cases are classified as indeterminate. Figure 3 outlines the results from April 2012 to March 2013.
Fig 3: Results of the audit of adherence to empirical antibiotic policy (April 2012 - March 2013)

The target compliance is set at 90% and as illustrated above this target was only marginally missed on one occasion (December 2012, 88.51%) during the year.

All exemption forms received into pharmacy are assessed by the Antimicrobial Management Team for appropriateness of prescribing of restricted antimicrobials. Figure 4 outlines the results from April 2012 to March 2013.
Use of Restricted Antimicrobials throughout NHSCT (excludes those lost to follow-up)

% of restricted antimicrobials validated for Trust from 01/04/2012 to 01/04/2013

Fig. 4: Results of exemption form review (April 2012 – March 2013)

The target is set at 95% appropriateness and as demonstrated in figure 4 we are consistently falling below this goal. We plan to feedback on a monthly basis the non-validated antibiotics directly to the consultants.

6.4 Publications and other activities

Recent publications include:

The PhD student work via an R&D Office Fellowship into cycling of antibiotics is progressing well.

A number of other projects are on-going with a number of commercial partners in respect of disinfectant agents and also with regard to procedure packs relating to blood culture, peripheral IV cannulation and lumbar puncture. Two PhD students are involved in different aspects of the work from both QUB and UU.

The LAMPS (Live Automated Microbiology Pharmacy Surveillance) System is being developed using a six phase approach and Phase one is now operational. The system receives live data-feeds from multiple existing healthcare databases which allow monitoring of antimicrobial use in relation to policy and hand hygiene. Phase two of LAMPS will focus on additional microbiology surveillance data, further antimicrobial performance indicators and early-warnings in the form of automatic microorganism-specific ‘intelligent’ alerts.

The NSCHT (Along with the WHSCT and SHSCT) submitted hospital antimicrobial consumption data to ESAC-net (2012) for the first time this year.

7.0 Hand Hygiene

The IPC Nursing Team continues to use a comprehensive Hand Hygiene Audit Tool across Inpatient facilities. The elements of this audit tool encompass:

1. The World Health Organisation (WHO)‘ 5 Moments of Care’
2. The 7 step technique
3. Bare below the Elbow Policy

In addition, a specially adapted Hand Hygiene audit tool for community staff is used to audit compliance with hand hygiene in domiciliary care.

7.1 Clean Your Hands Campaign

The Trust continues to participate in the National Patient Safety Agency (NPSA) ‘Clean Your Hands’ Hand Hygiene Campaign by displaying signage and posters throughout the hospitals promoting handwashing and the use of hand rub amongst patients, visitors and staff.

Additionally, to mark World Hand Hygiene Day in May 2012 the Infection Prevention and Control Nurses held awareness raising sessions at Antrim and Causeway Hospitals. Visitors to the foyer of the hospitals are invited, by Infection Prevention and Control Nurses, to take part in a simple hand washing test using ultra-violet light boxes. World Hand Hygiene Day is promoted by the Trust every year to underline just how vital proper hand cleanliness is, particularly in health care settings, in helping to prevent the spread of infection.
7.2 Hand Hygiene Audits

Hand hygiene continues to be a key performance indicator for all departments within the Acute Sector.

The self auditing process previously undertaken throughout the Trust changed in November 2012. Historically, all hospital wards/departments had been auditing hand hygiene) weekly.

These hand hygiene audits are observation audits carried out by a ward nurse or link IPC nurses. The audit findings were collated in the patient safety office and were reported in the corporate dashboard for HCAI monthly.

The dashboard showed consistently high levels of compliance and for some time, IPCEH Committee had expressed concerns about:

- the auditing burden for nursing staff;
- lack of reward for having high compliance;
- the reliability of the data and;
- the level of assurance it actually provides.

In consultation with the Medical Director and the Director of Nursing a proposal to revise the pattern of audits was developed to:

- Reduce the burden of auditing;
- Incentivise good practice and;
- Strengthen assurance through meaningful, targeted audit.

The IPC nursing team now carry out independent hand hygiene audits on every ward, at least twice yearly. These will be undertaken as a rolling audit programme with the expectation that if there are concerns regarding practices or there is an increase in bacteraemia cases, then additional audits will be undertaken.

If these independent audits find standards below the accepted level of compliance (90%), then the ward manager will be responsible for a management-led, observed audit of practice for 3 consecutive months, these will be known as special measures audits. The results of the independent IPCN audits and special measures audits will be reported to the patient safety office for corporate reporting.

When any facility has a cluster of HCAI cases, weekly measures may be re-introduced for a period of time.

NNU and other augmented/high risk care areas have continued with weekly hand hygiene audits.

The Governance Department collates the completed audits for performance report at Trust meetings.
The following Table shows Hand Hygiene audit scores from April12 – March 13. From November 2012, the audit scores relate only to Augmented Care.

<table>
<thead>
<tr>
<th>Compliance with Hand Hygiene</th>
<th>April 2012 - March 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>


8.0 High Impact Interventions

High Impact Interventions (HII) or care bundles have been identified as a simple evidence based tool that reinforces the actions that clinical staff need to undertake every time for key procedures in order to significantly reduce infection. Their aim is to increase the reliability of clinical processes and reduce unwarranted variations in care delivery.

The IPC Nursing Team have continued to support and encourage clinical staff to implement these evidence based processes. As with hand hygiene audits, the IPC nursing team now carry out independent hand hygiene audits on every ward, at least twice yearly. These will be undertaken as a rolling audit programme with the expectation that if there are concerns regarding practices or there is an increase in bacteraemia cases, then additional audits will be undertaken.

If these independent audits find standards below the accepted level of compliance (90%), then the ward manager will be responsible for a management-led, observed audit of practice for 3 consecutive months, these will be known as special measures audits. The results of the independent IPCN audits and special measures audits will be reported to the patient safety office for corporate reporting.

In addition, the IPC Nursing Team provided training to clinical staff on Aseptic Non Touch Technique to strengthen compliance with device related High Impact Intervention Care Bundles. ANTT is covered in mandatory training sessions for nursing and medical staff.

The Trust continues to strengthen accountability for High Impact Interventions including Peripheral Intravenous Care Bundle, Urinary Catheter Care Bundle, Central Venous Catheter Care Bundle, Surgical Site Infection, Renal Care Bundle, Ventilator Care Bundle and Management of Clostridium difficile. The Governance Department has collated and presented results in a monthly Corporate Performance report for Trust Board.
9.0 Audit

9.1 Regulation and Quality Improvement Authority (RQIA) Audits

In 2009 the Minister asked the Regulation and Quality Improvement Authority to carry out unannounced hygiene inspections in acute hospitals in Northern Ireland.

Between April 2012 and March 2013 RQIA inspected Ward 3 in Whiteabbey Hospital (May 2012), Elective Surgical ward and Medical 2 in Causeway Hospital (June 2012) and C1, C4, C5 and A3 in Antrim Hospital (October 2012).

The standards of cleanliness and infection control practice were generally high. Action plans were developed and submitted from each inspection report.

9.2 IPCT Audits

A rolling programme of unannounced Quality Assurance Audits monitoring Environmental Cleanliness and Clinical Equipment were carried out by Domestic Services staff and Infection Control Nurses. Clinical Practice audits were also completed by the IPC Team during 2012/2013 using modified versions of the IPS clinical practices audit tool and Regional Healthcare Cleanliness audit tools where appropriate.

In November 2012 the new Regional Healthcare, Hygiene and Cleanliness Audit tool was introduced and is now used for annual audits in acute and community facilities to audit compliance with environmental and equipment cleanliness. These audits are now undertaken collaboratively with Support Services, Estates department, Clinical Lead Nurses and Infection Prevention and Control Nursing Team.

Following timely verbal feedback of areas of non-compliance, a hard/electronic report is forwarded to senior management and relevant stakeholders in accordance with the agreed timeframe. Action Plans were submitted to the IPC Nominated Directorate Leads and progress reported to the IPCEHC.

The IPCNs also provided expert advice, support and training to areas were poor compliance with practices and/or procedures were noted.

Independent Clinical Practice audits

The IPC Nursing Team undertake a rolling programme of Independent clinical practice audits to monitor compliance with insertion and on-going Peripheral line management, Urethral Catheter insertion and on-going care on a twice yearly basis. All acute clinical areas in Antrim, Causeway, Mid Ulster and Whiteabbey Hospitals were audited with feedback provided to clinical leads and IPCEH Committee. Action plans were provided by areas found to be non-compliant during audit.
Independent audits on Management of Clostridium *difficile*

The IPC Nursing Team have also continued to monitor each identified case of Clostridium *difficile* in an acute clinical Trust setting by undertaking an independent audit to monitor compliance with all aspects of the management of Clostridium *difficile*. Feedback is provided during RCA meetings, clinical leads and IPCEH Committee. It was reassuring to note that the majority of Trust areas were found to compliant with audit scores over 90% when audited.

9.3 Commode/Mattress Audits

Commode audits are carried out weekly by ward staff for cleanliness, wear and tear. These audit results are returned to the Lead Nurses responsible for that clinical area. Any commodes identified by ward staff as being as damaged rendering them unable to be cleaned effectively are replaced. Spot checks are also undertaken by IPCN's during ward visits.

Mattress audits are carried out monthly by ward staff for cleanliness and wear and tear. A leak-proof test is carried out on all mattresses to provide assurance that the mattress cover is intact and that the underlying sponge core has not become contaminated. Completed mattress audits are returned to the Lead Nurses responsible for that clinical area. Any mattresses failing mattress audits/inspections are replaced.

Infection Prevention and Control Nurses continue to spot check and validate commode and mattress audits during routine ward visits and Quality Assurance audits. Timely identification and immediate action to ‘condemn and replace’ unfit for purpose mattresses’ and commodes, ensures prompt removal of potentially high reservoirs of infection from clinical areas.

Refurbishment of the bed and mattress store in Antrim site has significantly improved management and replacement of mattresses. Work is ongoing to look at traceability of beds and mattresses throughout the Trust.

10.0 Policy Review

The Regional Infection Prevention and Control Manual is available for staff to view on the Trust Intranet (Staffnet). The IP&C Nursing team contribute towards policy formulation for the Regional IPC Manual along with Infection Control Teams in other Trusts.

NHSCT Policies relating to IPC are formulated, reviewed and updated and made available on the Trust Intranet (Staffnet).

THE IP&C Nursing team also provided evidenced based guidance to departments and facilities to support and assist with the formulation of many Standard Operative Procedures (SOP).
11.0 Training and Education

The IPC Nursing team provided evidence based training to ensure knowledge and awareness of risks relating to healthcare associated infections.

Induction

Infection Control training is provided to all new staff commencing employment with the Trust during corporate induction and additionally discipline specific inductions e.g., nursing, medical, hotel services.

Update Mandatory Training:
A rolling 3 year training strategy is in use to incorporate;

1. Face to Face training sessions delivered 3 yearly utilising a NIPEC recommended tiered approach to training determined by staff role and the level of patient/client contact.
2. DVD and associated competency Tool for acute setting and for community settings. This DVD is available on the staff intranet and also on hard copy.

The main objective of this training is to target 95% of all Trust staff with an update on current infection issues.

Tier Training (Face to Face)
Face to face training covers current issues in infection control e.g., Standard and transmission based Precautions, Root Cause Analysis, Outbreak Management, High Impact interventions including aseptic non-touch technique (ANTT).

Multidisciplinary training continues to be delivered to some groups of Community staff to facilitate community arrangements eg. Closure days

Training DVD
A DVD “Infection Prevention and Control for NHSCT staff in Acute Settings” was previously produced and disseminated to all wards and departments in October 2010. This ongoing training package is also available to view on Staffnet.

The Community IPC DVD was used to target staff working in community care settings.

Both DVDs enable managers to meet their annual infection control training target as part of the Infection Prevention and Control 3 year Training Strategy.

The DVDs have Competency tools incorporated to be scored by the IP&C Link Nurse or Ward Manager. A score of 95% must be scored in the competency tool. If the staff member is not successful in attaining this score, a face to face session is recommended.
**Link Nurse and Link Auxiliary/Worker Training**

An accredited Stand Alone Module for Registered Nurses on the Application/Management of the Principles of IP&C in Clinical Practice is available and run through NEDC. The module is delivered by both NEDC staff and the Infection Prevention and Control Nursing Team.

Equally a continuous development framework also co exists for the health care assistant /Nursing auxiliary in the form of an IPC study day programme providing learning set opportunities.

IPCN’s provide educational link nurse/worker meetings on a quarterly basis to update link IPC staff on current issues, strategies and trends. An agenda is set prior to each meeting and minutes are subsequently disseminated via ward managers. Dates for future meetings are sent to ward managers well in advance in order to enable release of staff from clinical areas to ensure attendance at meetings. IPCN have endeavoured to deliver these meetings at ward level to encourage staff attendance.

**Stoolsmart Training**

Additional focused infection prevention and control training is also delivered to address concerns with inappropriate faecal specimen collection in areas where this has been a concern. ‘Stoolsmart’ training continues to be delivered by IPCN’s to trained nurses and nursing auxiliaries at ward level to enable cascade training to continue within that clinical area. It has also now become part of mandatory training for all clinical staff.

**ANTT**

The IPC Nursing Team continue to provide training to acute and community clinical staff on Aseptic Non Touch Technique to strengthen compliance with device related High Impact Intervention Care Bundles, in particular insertion and ongoing care of peripheral cannulae. ANTT training has now been incorporated into mandatory training for staff that direct hands on clinical care and contact with indwelling medical devices.

**Infection Control Fast Facts Sheets**

To compliment some of the existing policies concerning infection control the IPC Nursing Team have developed Fast Facts education sheets. These are 1 page easy to read information sheets on various topics relating to infection control that can be discussed at ward meetings/huddles to raise awareness for clinical staff. Topics covered so far have included Gastroenteritis and Sharps Safety.

**12.2 IPC & Corporate Communications Department**

The IPC Nursing Team in partnership with the Corporate Communications Department submitted monthly updates and good news stories internally on staffnet and externally to local press to promote awareness and involvement on specific infection control topics.

**12.3 Infection Prevention and Control in the Built Environment**

The Trust has recently undergone a lot of refurbishment in many clinical areas and has invested in New Build projects both in the Acute Setting and in the Community. The Infection Prevention and Control Team has been involved from the planning stage with all
new building and refurbishment projects and has provided expert advice on key factors within the built environment which can impact on the control of infection. During 2012/2013, the IPC Team have been able to provide expert advice into every stage of the following new build projects to ensure that the building design features will minimise the risk of transmission of infection within a healthcare environment:

- A3 and A4 wards extension/modular units, Antrim Hospital;
- New A&E and new 24 bed ward at Antrim Hospital;
- Sexual Assault Referral Centre (SARC), Antrim Hospital;
- New Health Centre, Ballymena.

12.4 On Call Rota

The Infection Prevention and Control Nursing Team have continued to provide an ‘on call’ service to the Trust as follows:
Monday to Friday; 515pm – 8.45am;
Weekends and Public Holidays; 8.45am - 8.45am.

13.0 Conclusion

During 2012/2013 the Trust has continued to give Infection Prevention and Control a very high priority. Good progress was made during 2012/13 as evidenced by the ongoing reduction in the incidence of both MRSA bacteraemias and C.difficile infections.

There continued to be very high levels of activity across the Trust in relation to all aspects of Infection Prevention and Control. The Trust remains fully committed to maintaining the highest possible standards in relation to Infection Prevention and Control and will continue to maintain a very high focus on this in 2013/2014.