The Regulation and Quality Improvement Authority

RQIA
Unannounced Infection Prevention/Hygiene Augmented Care Inspection

Royal Victoria Hospital
Regional Critical Care Unit

4 and 5 February 2015

informing and improving health and social care
www.rqia.org.uk

The Regulation and Quality Improvement Authority

The Regulation and Quality Improvement Authority (RQIA) is the independent body responsible for regulating and inspecting the quality and availability of health and social care (HSC) services in Northern Ireland.

RQIA's reviews and inspections are designed to identify best practice, to highlight gaps or shortfalls in services requiring improvement and to protect the public interest.

Our Hygiene and Infection Prevention and Control inspections are carried out by a dedicated team of inspectors, supported by peer reviewers from all trusts who have the relevant experience and knowledge. Our reports are available on the RQIA website at www.rqia.org.uk.

Inspection Programme

The CMO's letter (HSS MD 5/2013) endorsed the use of the Regional Infection Prevention and Control Audit Tools for Augmented Care Settings by all Trusts in Northern Ireland in the relevant clinical areas www.rqia.org.uk.

- Governance Assessment Tool;
- Infection Prevention and Control Clinical Practices Audit Tool;
- Neonatal Infection Prevention and Control Audit Tool;
- Critical Care Infection Prevention and Control Audit Tool;
- Augmented Care Infection Prevention and Control Audit Tool

The introduction of this suite of audit tools is follow-on from development of the existing regional healthcare hygiene and cleanliness standards and audit tool, developed and disseminated in 2011. Both sets of tools should be used in conjunction with each other. A 'Guidance and Procedural Paper for Inspections in Augmented Care Areas' has been developed which outlines the inspection process www.rqia.org.uk.

The inspection programme for augmented care covers a range of specialist facilities and a rolling programme of unannounced inspections has been developed by RQIA to assess compliance with both of these sets of audit tools.

RQIA also carries out announced inspections. These examine the governance arrangements and systems in place to ensure that infection prevention and control and environmental cleanliness policies and procedures are working in practice.

Contents

1.0 Inspection Summary

An unannounced inspection was undertaken to the Royal Victoria Hospital (RVH) Regional Critical Care Unit on 4 and 5 February 2015. The inspection team comprised of four RQIA inspectors and the chairman of RQIA who attended as an inspection observer. Details of the inspection team and trust representatives attending the feedback session can be found in Section 7.

Picture 1: Entrance to the Regional Critical Care Unit

The critical care unit, based at the Royal Victoria Hospital (RVH) site, is part of the Belfast Health and Social Care Trust and provides adult general intensive care and high dependency services (Picture 1). It is commissioned for 17 intensive care beds (Level 3) and 8 high dependency care beds (Level 2) however dependency levels may cause a change to this configuration.

The unit provides regional intensive care services for patients with life threatening illness, following major and complex surgery and serious accidents. Patients in high dependency care are generally less ill than those in critical care but still require organ support which cannot be provided in an ordinary ward.

The critical care unit was assessed against the following regionally agreed standards and audit tools:

- Regional Critical Care Infection Prevention and Control Audit Tool.
- Regional Infection Prevention and Control Clinical Practices Audit Tool.
- Regional Healthcare Hygiene and Cleanliness Standards and Audit Tool.

This inspection is the first of a three year cycle of inspection carried out within this area. The report highlights strengths as well as areas for further improvement, and includes recommendations and a quality improvement action plan.

Overall the inspection team found evidence that the critical care unit at the RVH was working to comply with the above standards and audit tools.

Inspectors observed:

- the unit was compliant in all seven of the Regional Healthcare Hygiene and Cleanliness Standards

Inspectors found that the key areas for further improvement were:

- layout, design and storage capacity within the unit
- the management of blood cultures

Inspectors observed the following areas of good practice:

- Inspectors noted that there has been shared learning and ongoing improvement from the previous critical inspections within the trust.
- Ebola virus preparedness staff training has recently been completed within the unit.
- It is anticipated that during spring of 2015 the critical care unit will move to a new purpose built facility within the new critical care building.
- Staff have recently undertaken 'SCREAM' training (Standard critical care resuscitation emergency airway management). The training was designed to prepare staff for managing emergency situations within the single rooms of the new unit.
- Unit link staff have initiated infection prevention and control (IPC) champions meetings.
- A new communication flowchart on the management of multi resistant organisms within critical care is being developed by the infection prevention and control team (IPCT).

The inspection resulted in 28 recommendations for improvement listed in Section 6.

Detailed lists of the findings are available on request from RQIA Infection Prevention and Hygiene Team.

The final report and quality improvement action plan will be available on RQIA's website. Where required, reports and action plans will be subject to performance management by the Health and Social Care Board and the Public Health Agency (PHA).

RQIA's inspection team thanks the Belfast Health and Social Care Trust (BHSCT), and in particular all staff at the RVH Critical Care Unit for their assistance during the inspection.

2.0 Overall Compliance Rates

The Regional Critical Care and Clinical Practices Infection Prevention and Control Audit Tools

RQIA uses these tools as an assessment framework to build progressive improvement over a three-year inspection cycle. Compliance scores for the first inspection are 85 per cent, rising to 95 per cent by the end of the third inspection.

Compliance rates are based on the scores achieved in the various sections.

Table 1: Regional Critical Care Infection Prevention and Control Audit Tool Compliance Levels table layout look different, line width?

Areas inspected	
Local Governance Systems and Processes	89
General Environment – Layout and Design	80
General Environment – Environmental Cleaning	88
General Environment – Water Safety	94
Clinical and Care Practice	100
Patient Equipment	97
Average Score	**91**

Table 2: Regional Infection Prevention and Control Clinical Practices Audit Tool Compliance Levels

Areas inspected	
Aseptic non touch technique (ANTT)	100
Invasive devices	84
Taking Blood Cultures	*68
Antimicrobial prescribing	89
Clostridium *difficile* infection (CDI)	*97
Surgical site infection	100
Ventilated (or tracheostomy) care	100
Enteral Feeding or tube feeding	90
Screening for MRSA colonisation and decolonisation	98
Average Score	**92**

*Staff practice was not observed during the inspection.
Information was gained through staff questioning and review of unit audits.

Compliant:	85% or above
Partial Compliance:	76% to 84%
Minimal Compliance:	75% or below

The Regional Healthcare Hygiene and Cleanliness Audit Tool

Compliance rates are based on the scores achieved in each section of the Regional Healthcare Hygiene and Cleanliness Audit Tool. Percentage scores can be allocated a level of compliance using standard compliance categories below.

Table 3: The Regional Healthcare Hygiene and Cleanliness Audit Tool Compliance Levels

Areas inspected	
General environment	94
Patient linen	100
Waste	92
Sharps	87
Equipment	93
Hygiene factors	99
Hygiene practices	94
Average Score	**94**

Compliant: 85% or above
Partial Compliance: 76% to 84%
Minimal Compliance: 75% or below

Where an inspection identifies issues that are considered to be of high risk, trusts will be asked to take immediate action.

3.0 Inspection Findings: Regional Critical Care Infection Prevention and Control Audit Tool

The Regional Critical Care Infection Prevention and Control Audit Tool contains seven sections. Each section aims to consolidate existing guidance in order to improve and maintain a high standard in the quality and delivery of care and practice in critical care. This will assist in the prevention and control of healthcare associated infections.

Regional Critical Care Infection Prevention and Control Audit Tool Compliance Levels

Areas inspected	
Local Governance Systems and Processes	89
General Environment – Layout and Design	80
General Environment – Environmental Cleaning	88
General Environment – Water Safety	94
Clinical and Care Practice	100
Patient Equipment	97
Average Score	**91**

The findings indicate that overall compliance was achieved in relation to the Regional Critical Care Infection Prevention and Control Audit Tool.

3.1 Local Governance Systems and Processes

For organisations to comply with this section, good governance should be displayed through management that displays effective decision-making and leadership. Systems and processes should be robust, and staff should be aware of their roles and responsibilities. Appropriate policies and procedures should be available. The unit achieved compliance in this section of the audit tool.

Leadership and Management

The unit lead sister displayed good leadership, management and knowledge on infection prevention and control and the necessary measures to take in managing infection within the unit.

Up until August of 2014, the regional critical care unit had a dedicated critical care infection prevention and control nurse (CCIPCN) with protected hours. The post had been funded by the charity 'Revive' until 31st March 2015. The nurse left this post in August 2014. Duties of this IPC nurse included; surveillance, outbreak management, training, advice and education. Inspectors were provided with information that stated since this post was introduced in May 2012; the number of unit acquired infections has reduced.

The unit is currently reviewing how this post will be funded substantively. To mitigate against the loss of this resource, two critical care unit staff share 20 hours for IPC duties within the unit. Inspectors were informed that at times of staffing pressures these hours may not always be protected for IPC work. Discussions with members of staff highlighted that it can be challenging when there is now no defined IPC lead within the unit, when two members of staff share this role.

Inspectors were informed that maintaining adequate staffing levels within the unit has been challenging for the unit sister, especially during recent outbreaks of Acinetobacter *baumanni* during November and December 2014. Factors that have impacted on staffing levels include: maternity leave, staff secondment, sickness and vacancies. Inspectors were informed that the unit did try to recruit nursing staff to cover shifts from nursing agencies however; this had been difficult as the staff available did not have the correct skillset to work within the critical care unit.

It was observed over the two days of the inspection, nursing staff had to work outside the normal staffing ratio on patients within the ICU. The lead sister reported that the current staffing challenges and working on the floor had restricted time to carry out the managerial responsibilities of the post, including proactive preventative IPC work and data analysis to identify trends in infections.

Inspectors were informed that 18 nursing staff posts are actively being recruited for staff for the critical care units on all three sites of the BHSCT, with nine staff being allocated to the RICU at the RVH. Management staff had indicated that the recruitment process continues to be lengthy. A contingency plan has been actioned to address the issue of staff, actions include; the regional critical care unit (CCU) has been prioritised by workforce planning and nursing staff within the trust have been given the opportunity for internal transfer to the unit.

1. **It is recommended that the trust continues to work to improve critical care nursing staff levels and ensure that nominated staff have adequate protected time to manage the IPC duties of their role.**

2. **It is recommended that the trust reviews the barriers to a timely recruitment process and implements changes to avoid delays.**

Infection prevention and control nurses (IPCNs) are available from 8am to 5pm Monday to Friday within the trust. In the evenings and at weekends the Medical Microbiologist on-call provides IPC advice. Inspectors were informed that although IPC trust staff did not visit the unit on a daily basis they are readily available for advice by phone. Inspectors were informed that visits by IPC staff were increased for outbreak management. Staff commented that they had a strong relationship with the IPC team who are very supportive in providing advice and assisting with IPC initiatives.

3. **It is recommended that infection prevention and control staffing levels are reviewed to facilitate daily visits to the unit.**

Within the unit there is seven nominated IPC link staff that rotate attendance at hospital link meetings. IPC information from link meetings is cascaded to other unit staff for learning via staff meetings and daily safety briefings. The unit has also developed a staff newsletter entitled 'Focus' since 1996. The newsletter was developed to improve communication between staff, highlighting latest news and updates with specific references to IPC.

During the outbreak, Patient and Client Support Services (PCSS) staff had been increased to maintain three times per day environmental cleaning. This cleaning regime remains in place after the outbreak was declared over as a continued infection preventative mechanism.

Review of Documentation

A review of documentation evidenced a range of critical care meetings, from management level to frontline staff, which feed into each other. They include: critical care management team meetings, local governance meetings, critical care sisters meetings, senior staff meetings, IPC champions meetings and unit staff meetings. A priority significant focus of CCU staff meetings was IPC.

Meeting minutes evidenced staff feedback relating to high impact interventions, hand hygiene and environmental cleanliness audits, mandatory training, RQIA visits, outbreak updates and trust performance against *Clostridium difficile* (CDI) and MRSA targets. IPC champions meetings occur monthly and focus discussions on issues within the unit.

A review of documentation evidenced that incidents relating to IPC were appropriately reported and acted on. MRSA and CDI infections (are investigated by a Root Cause Analysis (RCA) process as per trust policy. Documentation from RCAs evidenced that a multidisciplinary approach was taken to this process and minutes from staff meetings highlighted that staff receive timely feedback from such incidents. A serious adverse incident (SAI) investigation and the development of action plans using a RCA methodology was being carried out for the recent outbreak of A. *baumanni* within the unit. SAIs, complaints and IR1s (incident forms) are reviewed at the critical care managerial team meeting. The incidence of CDI and MRSA bacteraemia cases within the trust are discussed at the HCAI improvement team meetings and the outcome of RCA investigations are reviewed to identify learning and potential trends.

All staff questioned during the inspection had a good knowledge of IPC policies and procedures, and were able to access the relevant documents on the trust intranet site. Since the inspection of the critical care unit at the Belfast City Hospital, all policy documents pertinent to the critical care unit have been moved to a central hub on the intranet site which allows for ease of

access. The lead clinician within the unit identified that there are approximately 30 policies that require to be updated by the end of 2015.

The occupational health department (OHD) has developed a new policy entitled 'Screening and vaccination of staff against infectious diseases in the workplace – Guidelines (2014)'. This has attached links to policy and guidelines on hepatitis B, MMR, TB and varicella zoster. The new updated MRSA policy has advice for staff on screening which should only be initiated by the IPC team, in liaison with the OHD. Advice for staff having symptoms of infective vomiting and diarrhoea is available within the IPC regional manual, included within the IPC area of the electronic HUB on the staff intranet. Staff members questioned, were knowledgeable of the appropriate guidance and action to take in the event that they develop an infectious condition

A system was in place for unit staff to identify and report maintenance and repair issues. The computerised recording system in the estates department captures this information.

Audit

Local and regional audits and the implementation of high impact interventions were undertaken to improve infection prevention and control practices and environmental cleanliness. Evidence was available to show that audit results were reported to unit staff and discussed at local and managerial meetings.

Inspectors evidenced that the IPC team had independently validated practices within the unit. Validation audits included hand hygiene, peripheral venous cannula audit, aseptic non touch technique (ANTT), MRSA management and environmental audits.

During the recent outbreak, hand hygiene audits were escalated to daily. On one specific hand hygiene audit, only 40 per cent compliance was achieved. This low compliance had been attributed to staff who visit the unit from other areas. Minutes of meetings evidenced that this issue had been discussed and actioned with the relevant staff. Independent hand hygiene audits continued daily, scores of 90 per cent and 100 per cent had been evidenced within outbreak meeting minutes.

Inspectors noted that robust action plans had been completed following audits that identified poor practices in the management of peripheral venous catheters and surveillance information that highlighted an increased incidence of device related infections. These action plans had been completed by the dedicated CCIPCN nurse, up until she had left the post. Following this, inspectors were unable to obtain evidence of action plans when another increased incidence of device related infections was identified.

4. **It is recommended that robust action plans are developed and actioned to prevent and control any increase in the incidence of infection within the unit.**

Key performance data from audits was displayed publicly at the entrance to the unit for visitors and staff to view. Inspectors noted that not all information displayed was up to date (Picture 2). Audit information is also disseminated to unit staff at safety briefings and team meetings. SharePoint on the IT CareVue system has been newly introduced into the unit. The ward lead informed inspectors that it is intended to use this package to further supplement communication with staff.

Picture 2: Quality improvement display board

5. **It is recommended that unit performance data on display is routinely updated.**

Surveillance

Surveillance, the continuous monitoring of healthcare associated infection (HCAI) is key to the control of infection. A surveillance programme can be used to implement improvement initiatives, assess effectiveness of clinical interventions and can quickly identify outbreaks of infection.

Local surveillance data is analysed by the microbiology and the IPC teams and presented at the trust HCAI improvement team meeting. The critical care clinical coordinator for RICU attends this meeting monthly. This meeting reviews the current trust incidence of CDI, MRSA bacteraemia in line with set PHA targets.

The local surveillance system alerted staff to a recent increased incidence of Acinetobacter *baumanni* during November and December 2014. Reviewed documentation evidenced an investigation and measures taken to control and prevent future incidence. Learning from the outbreak highlighted a practice change for staff who were engaging in moving and handling activities. Staff now don long sleeve fluid repellent gowns during moving and handling activities with bariatric patients that are infected or colonised with an alert organism (Alert organisms are those identified organisms that pose a health risk to patients, staff and visitors). The rationale for this change in practice is to prevent contamination of the area of their skin above the wrist and below the elbow which would be not covered in a 7 step hand hygiene procedure.

During the outbreak, the lead sister in the CCU carried out local surveillance of this organism. Data was captured for each patient in relation to infection status, screening, and symptoms.

Training and Development

Staff infection prevention and control knowledge and up-to-date practical skills are a prerequisite for clinical staff to carry out their role in an effective manner.

Accessing relevant trust policies and the ability to demonstrate essential knowledge of key IPC legislation is included as an aspect of the critical care networks national competencies. All unit staff must progress through step one of the competency framework. IPC is a competency included within this framework and assists staff in developing knowledge, understanding and enhance skills that contribute to IPC in critical care. The competencies are set out to provide a pathway of progress, starting with a novice in critical care to becoming a competent and safe practitioner.

All unit staff had participated in the trust corporate welcome and introduction to the basic principles of IPC. IPC training is mandatory within the trust, 57 per cent of unit staff have completed this face to face training. Inspectors were informed that challenges faced with staffing had meant that it is difficult to release staff to attend the mandatory IPC training. It was also highlighted that a factor influencing low attendance at IPC mandatory training may have been the recent focus on Ebola virus preparedness training and staff attendance at the SCREAM (Standardised Critical care resuscitation emergency airway management) training in preparing to deal with emergency situations within the single rooms of the new unit. Inspectors were informed that there will be a renewed focus on improving attendance at IPC mandatory training.

6. **It is recommended that all staff attend mandatory IPC training.**

Staff education and training has been further augmented within the unit with the development of IPC 'focus months'. Each month, critical care staff focus on an IPC topic for improvement. Topics may be chosen based on new IPC developments, recent invasive device related infections and learning from issues and incidents. Recent focus months have included catheter care and ventilator associated pneumonia (VAP).

An educational IPC DVD for critical care has been produced and filmed in the critical care clinical environment. The video includes; the chain of infection, hand hygiene, transmission based precautions and personal protective equipment, ANTT, environmental cleanliness including safe management and disposal of linen and sharps.

A number of the unit link nurses are to attend an IPC link nurse study day that is due to take place on the 26 February 2015.

Two critical care consultants have a designated role as educational supervisors. A challenge highlighted to inspectors was ensuring there was a

constant level of training and knowledge for staff with the high turnover of junior doctors within the unit, which equates to 5/6 rotations per year.

7. **It is recommended that a review of the number of the junior doctor rotations within the unit is carried out.**

Information and Communication

Information on infection prevention and control, and the effective communication of this information, is vital to ensure adherence to good practice.

A range of information resources was in place to advise relatives or visitors of infection prevention and control precautions; hand hygiene leaflets, general visitor information and display posters.

All relatives/visitors to the critical care unit receive an information booklet. The booklet highlights the importance of IPC to the susceptible patients within the unit. In conjunction with the hand hygiene leaflet it provides specific advice for visitors of how, where and when to wash their hands. Inspectors were informed that visitors will receive a one to one session in hand hygiene, if and when appropriate. The booklet also contains advice for relatives and visitors, in the appropriate use of clinical hand wash sinks and in relation to bringing food into hospital.

The booklet however does not explicitly detail that relatives/visitors if appropriate, may be required to follow the concept of 'bare below the elbow', i.e. not to wear false nails, jewellery; stoned rings, watches and bracelets and also not to bring outside coats into the unit. Inspectors were informed that the booklet will be updated for moving into the new unit, referred to in section 3.2.1.

Inspectors were informed that in the relatives' rooms of the new unit; electronic monitors will continuously display custom content, such as waiting times and IPC advice. This will provide an opportunity to disseminate information to relatives/visitors while they wait**.**

8. **It is recommended that the patient and relative information booklet is updated to include; the concept of bare below the elbow and not to bring outside coats into the unit, where appropriate.**

3.2 General Environment

3.2.1 Layout and Design

For organisations to comply with this section of the audit tool they must ensure adequate facilities are available for the delivery of care. This includes the space available to carry out care, decontaminate equipment and to ensure effective isolation.

The unit has achieved partial compliance in the layout and design of the environment.

All bed spaces within the ICU and HDU are not a standardised size; each with some variation in core clinical space, with the largest being 24 sqm. The four side rooms and a small number of bed spaces within ICU and HDU do achieve 80 per cent of the minimum dimensions currently recommended for existing units by the DHSSPSNI however the remaining bed spaces do not achieve this requirement. The requirement of the linear distance between bed head centres is 4.6m. This was not achieved in all occasions within the unit.

Inspectors noted that, although the core clinical space did not meet current recommended requirements, staff were working within these limitations to deliver safe and effective care. Inspectors observed that bed spaces were free from clutter during the inspection.

In total there were four single rooms available within the unit. These rooms were used for the isolation of patients to control the spread of infection or for the protection of immunosuppressed patients. This is not in line with the number of side rooms recommended by the DHSSPS and outlined in the audit tool; a minimum of four single rooms per eight beds is required. There is also no dedicated area for near patient testing equipment.

Inspectors evidenced that ventilation systems were routinely monitored, serviced and cleaned by estates department.

The trust is in the process of building a new critical care unit. Inspectors were informed that it is anticipated that the new critical care unit will be operational from spring of this year, 2015. Inspectors were informed that the design principles of the new unit focus on enhancing patient privacy, light and space (Picture 3). The critical care unit will contain 32 beds over 2 floors (four zones consisting of eight beds). The floor space of the current critical care unit is 2, 8883 sqm. This will more than double in size to 6,201 sqm with the new unit.

The core clinical bed spaces will be 30 sqm which will more than meet the 26 sqm required in new builds.

All 32 beds are single room, (Picture 4) with two dedicated isolation rooms per zone, eight in total within the unit. This will meet the requirement of having a minimum of four single rooms per eight beds.

The design of the unit will reduce footfall; as relatives and visitors will access their loved one from an entrance at the back of each single room, they will not have to walk through the central staff areas of the unit.

Picture 3: Central work stations of the new CCU

Picture 4: Single rooms of the new CCU

3.2.2 Environmental Cleaning

For organisations to comply with this section they must ensure Patient & Client Support Services (PCSS) cleaning staff display knowledge of cleaning policies and procedures, and are competent in cleaning hand washing sinks. Environmental cleaning audits should be carried out, and the infection prevention and control team should be consulted when infection has been identified.

Good practice was observed and the unit was compliant in the section on environmental cleaning. Environmental cleaning; guidelines, audit and staff competency based training were in place and reviewed. On questioning, staff displayed good knowledge on appropriate cleaning procedures. There was a regular programme of de-cluttering and environmental auditing in place. Inspectors noted however that terminal cleans are not signed off by PCSS staff or the unit sister, and are also not randomly validated by PCSS supervisors.

9. **It is recommended that terminal cleans are signed off by Patient & Client Support Services staff or the nurse in charge, and randomly validated by Patient and Client Support Services supervisors.**

3.2.3 Water Safety

For organisations to comply with this section they must ensure that an overarching water safety plan and individual area risk assessment plan is in place. Water sampling, testing, flushing and maintenance are carried out correctly, and there is a mechanism in place to report water analysis results.

The unit was compliant in relation to water safety. An overarching trust water safety management plan and individual unit risk assessment plan were in place. The management plan has recently been reviewed in January 2015

and includes updated guidance as per Water Systems Health Technical Memorandums 04-01: Addendum, Pseudomonas aeruginosa – advice for augmented care units. Inspectors were informed that the water safety individual risk assessment is currently being reviewed.

Collection of tap water samples to facilitate microbiological organism testing and analysis was carried out. The trust carries out scheduled water sampling for pseudomonas *aeruginosa* from all outlets in augmented care areas on a quarterly basis. All results of water analysis are reported to the trust water safety group and the Augmented Care group for review. The water safety group is inclusive of staff from IPC, estates and clinical representatives.

Inspectors were informed that since the new UV technology incorporated taps had been installed; there had been no instances of pseudomonas *aeruginosa* identified from water testing. A system was in place to address any issues raised with the maintenance of hand washing sinks and taps.

Inspectors observed an occasion when a clinical hand wash sink was not used appropriately. A member of nursing staff was cleaning at the patient's bed side; they were observed wringing out excess cleaning fluids from a cloth into a clinical hand wash sink.

10. It is recommended that clinical hand wash stations are used for the purposes of hand washing only.

3.3 Critical Care Clinical and Care Practice

For organisations to comply with this section they must ensure that the delivery of care is provided in a way that negates the risk of transmission of infection. This is provided through adequate staffing, monitoring of patient movement, infection control screening policies and adherence to DHSSPS and local guidance on cleansing the critical care.

The unit achieved full compliance in this section of the audit tool.

A retrospective patient placement system to identify which bed the patient is in during their stay in critical care was available. The patient computer software package 'CareVue' facilitates this function which maintains a record of patient placement and movement within the unit and allows for retrospective patient placement recording. Written records were also available for inspectors to observe of patient placement and movement within the unit. The ability to carry out retrospective patient placement recording had been used to gather information to assist in managing an outbreak of Carbapenemase-producing Organism (CPO) in 2014.

To facilitate the continuity of care following the transfer of a patient to another unit, staff members complete the PHA 'Notification of Infection Status Patient transfer form'. On this form staff record the infection status of the patient; confirmed or suspected and if the patient had a previous known history of a multi-resistant organism or other infection risk. Microbiological specimen

results including pending results must be included on the transfer form. Staff were also required to record any IPC precautions that needed to be initiated and whether the patient had been involved in an outbreak.

Screening policies and procedures were in place and known to staff. All patients were routinely screened on admission for MRSA and weekly thereafter on a Monday. MRSA screening includes swabs of the nose, and groin and samples of sputum and urine. The trust MRSA policy outlines the processes for swabbing and decolonisation. Screening protocols were available to guide staff on screening patients for CPO and Glycopeptide-resistant producing organisms.

Inspectors were informed that if a patient's critical care admission screens or if their results following discharge or transfer to another ward were positive, the receiving or transferring wards were routinely informed if the results were clinically significant. A draft communication flowchart has been devised by the BHSCT IPC team on the management of multi-resistant organisms within critical care. It highlights the nominated responsibilities of staff in informing receiving or transferring units of results and patient infection status.

Staff washed patients in water from a source of known quality and used alcohol rub after hand washing when caring for patients. Staff were aware of risk factors that cause skin injury. All patients are bathed daily with single use chlorhexidine-impregnated wipes. The benefits of this are in reducing skin colonisation of pathogenic organisms such as MRSA and vancomycin-resistant enterococcus (VRE). Minutes of the IPC champions meeting in January 2015 highlighted that there had been an increase of MRSA and pseudomonas within the unit which may be linked to the inappropriate usage of the chlorhexidine wipes. Following this, strict guidance on the appropriate use and application of the wipes was disseminated to unit staff.

3.4 Critical Care Patient Equipment

For organisations to comply with this section they must ensure specialised equipment is effectively cleaned and maintained. Audits of equipment cleaning and education on the use of equipment should be available.

The unit achieved compliance in this section of the audit tool. Specialist equipment inspected was clean and in a good state of repair. Staff displayed good knowledge of single use equipment.

There was guidance and routine auditing of the cleaning, storage and replacement of specialised patient equipment, including when a patient is in isolation or during an outbreak.

Inspectors were informed that the critical care scientists continue to use a bench top steam steriliser autoclave for decontamination of a reusable part of a ventilator. This part can be purchased as a single use device, the costs of which may be balanced against the cost of maintenance, testing, validation, mandatory certification, and staff training with the steriliser. On the RVH site the BHSCT operate a comprehensive central decontamination unit for the

processing of reusable surgical instruments which should be used for this procedure.

11. **It is recommended that the unit should use the central decontamination unit for sterilisation of medical devices or use single use medical devices, rather than processing locally.**

4.0 Inspection Findings: Regional Infection Prevention and Control Clinical Practices Audit Tool

The Regional Infection Prevention and Control Clinical Practices Audit Tool contains nine sections. The observations of key clinical procedures have shown to reduce the risk of infection if performed correctly. Each section aims to consolidate and build on existing guidance in order to improve and maintain a high standard in the quality and delivery of care and practice in critical care. This will assist in the prevention and control of healthcare associated infections.

Regional Infection Prevention and Control Clinical Practices Audit Tool Compliance Levels

Areas inspected	
Aseptic non touch technique (ANTT)	100
Invasive devices	84
Taking Blood Cultures	*68
Antimicrobial prescribing	89
Clostridium *difficile* infection (CDI)	*97
Surgical site infection	100
Ventilated (or tracheostomy) care	100
Enteral Feeding or tube feeding	90
Screening for MRSA colonisation and decolonisation	98
Average Score	**92**

* Staff practice was not observed during the inspection.
Information was gained through staff questioning and review of unit audits.

The findings indicate that overall compliance was achieved. Inspectors identified that immediate improvement was required in the collection of blood cultures.

During the inspection clinical practice was observed in the majority of areas. Staff were questioned on all aspects of the clinical practices audit tool and displayed good knowledge on the practical application of clinical procedures.

4.1 Aseptic Non Touch Technique (ANTT)

ANTT is a standardised, best practice and safe aseptic technique used for the overall management of invasive clinical practices and preparation of medication. For organisations to comply with this section they must have a policy in place; staff should display knowledge and practical skills on the key principles, and audit of staff competency is carried out.

The unit achieved full compliance in this section of the audit tool. The ANTT policy was in place and accessible on the trust intranet for staff. The policy was completed in September 2014 and is due for review September 2015.

The policy identifies competency training and assessment as key principles in ensuring adherence to policy. The policy contains a range of hospital and community ANTT pictorial guidelines.

Since the CCIPCN has left the unit, one staff member has been designated to carry out all staff ANTT training. Training is carried out for both nursing and medical staff. Staff receive ANTT training by on line presentation and face to face training. In conjunction with the IPCT, the unit has developed its own DVD 'Infection Prevention and Control in Critical Care', with ANTT an element of its content. ANTT is also part of mandatory training for all trust clinical staff.

Records evidenced that all permanent nursing staff and medical staff have had ANTT training. The lead clinician provided records of all permanent and rotational staff trained in ANTT. At the start of each rotation new doctors are inducted and advised of the principles on ANTT and standard IPC precautions. They have one month to complete their on line ANTT training and assessment.

ANTT assessments are to be carried out yearly, the assessment tool used is within the ANTT policy. Evidence to support this ongoing assessment of staff was in place.

On observation staff displayed excellent application of the key elements of ANTT in a number of practice interventions and were able to demonstrate when ANTT procedures should be applied. Inspectors were given the opportunity to observe a bronchoscopy being carried out on a patient within the unit, good adherence to ANTT practice was observed.

The IPC team independently validate ANTT practice, at least monthly. Where poor compliance of 60 per cent was achieved in May 2014, re-audit showed 100 per cent compliance. In December 2014, only 50 per cent compliance was achieved on an ANTT audit, an action plan was available to address deficiencies in practice.

4.2 Invasive Devices

Invasive devices are medical devices which in whole or in part, penetrate the body, either through a body orifice or through the surface of the body. For organisations to comply with this section they must ensure that there are systems and process in place to ensure a standardised and consistent approach by staff in the insertion and ongoing maintenance of invasive devices.

The unit achieved partial compliance in this section of the audit tool. Evidence of practice was obtained through observation, review of documentation and speaking with staff.

Policies/procedures for the insertion and on-going management of invasive devices were in place however a number had passed their revision date without being reviewed. The management of adult urinary catheter policy was

due for review in 2012, peripheral venous cannulation (PVC) policy was due for review in May 2014, chest drain policy was due in 2013 and the central venous catheter policy (CVC) was due for review in 2011.

12. **It is recommended that all trust policies/guidelines are reviewed and updated as required to ensure continued accuracy of guidance for staff.**

Competency in the management of invasive access devices was assessed as an aspect of Step 1 of the new national competency framework for critical care nurses. This is to be completed by all new nursing staff employed within the unit during their preceptorship period. New staff competency was assessed in a range of the management of vascular, urinary, respiratory and enteral feeding access devices.

Inspectors were informed that in 2014, approximately 40 long term staff were trained on PVC insertion, management and competency and during 'focus months' all staff were trained on urinary catheter care and VAP. There were no records to evidence this training. The clinical coordinator advised that following discussion with the IPC team, the unit is to develop a programme of training and device competency assessment as part of ANTT assessments, all staff will be assessed on a range of invasive devices.

13. **It is recommended that a programme of training and competency assessment in the management of invasive device is developed for all clinical staff within the unit.**

In a review of patient records both on CareVue and within written records, inspectors observed that relevant information in relation to the insertion of a range of devices was not always available. Such information included the person who inserted the device, reason for insertion, size of the device and the batch number of the device.

14. **It is recommended that all relevant information is recorded in relation to the insertion and ongoing management of invasive devices.**

Staff practice and knowledge in the insertion and management of invasive devices during the inspection was of a good standard. Audit results evidenced compliance with high impact intervention standards.

Care Bundles: Week Commencing 26/1/15

- CVC - Ongoing care 100 per cent
- PVC - Ongoing care 100 per cent
- SRC - Ongoing care 100 per cent
- VAP – Ongoing care 100 per cent

The Public Health Agency (PHA) 'Device associated Infection Surveillance in Critical Care Units HCAI Monthly Report' details January 2014 – December

2014 RVH critical care unit infection rates. This report identifies that the critical care unit has had:

Key points:

- **Five** ventilated associated pneumonia in January – December 2014, there have been no VAP since September 2014.
- **Two** CAUTI per 1,000 bed days in January – December 2014, there have been no CAUTIs since July 2014.
- **Four** CLABSI per 1,000 bed days in January – December 2014, there have been no CLABSIs since September 2014.

As previously discussed these action plans had been completed by the dedicated CCIPCN. In the time period since this post had been vacated inspectors were unable to obtain evidence of action plans when an increased incidence of device related infections was identified within the unit.

4.3 Taking Blood Cultures

A blood culture is a microbiological culture of blood. It is employed to detect infections that are spreading through the bloodstream. For organisations to comply with this section they must ensure that a policy is in place, staff display knowledge and practical skills on the key principles and monitoring of the rate of blood cultures is carried out.

The unit achieved minimal compliance in this section of the audit tool. Immediate attention is required to bring this section to a compliant standard.

A trust blood culture policy was available however, it was due for review in 2012; inspectors were informed that it is currently being reviewed and were able to review a draft copy.

Evidence of practice was obtained through review of documentation and speaking with staff. Staff demonstrated good knowledge on how and why to take a blood culture.

Inspectors reviewed the notes of a number of patients that had blood cultures obtained. Inspectors observed that when a blood culture is obtained there is either no documentation or variation in details recorded: time, site and clinical indicators for taking blood cultures.

15. **It is recommended that all information on the collection of blood cultures is consistently recorded.**

The IPC team include the theory of taking of blood cultures as part of medical staff induction and the IPC team plan to develop a DVD on the procedure.

Competence with this skill is also part of medical staff members work based assessments; commonly known as DOPS - Directly Observed Procedural

Skills. From discussions, medical staff members had a good knowledge in line with best practice on how and why to take a blood culture.

The hospital laboratory regularly informed clinical/nursing/IPC staff of positive blood cultures within the unit. Systems are in place to compare blood culture results between directorates within the trust and this data is reviewed at the trust HCAI committee.

There is a routine system in place to monitor and review the rate of positive and false positive blood cultures within the unit. The rate of blood culture contamination should not exceed 3 per cent. Inspectors were informed that the incidence of blood culture contamination within the unit for the fourth quarter of 2014 was 5.24 per cent 9.09 per cent in HDU. The 5.24 per cent in ICU accounts for 11 contaminated samples out of the 210 samples sent for laboratory analysis. The 9.09 per cent in HDU accounts for four contaminated samples out of the 44 samples sent for laboratory analysis. These results may be an indication that blood cultures are not being collected with proper attention to aseptic technique. There has been no update competency based training for staff on taking blood cultures to address the blood culture contamination rates and there was also no routine compliance monitoring with best practice when taking blood cultures within the unit.

16. **It is recommended that a system should be initiated to routinely monitor compliance with best practice when collecting blood cultures. An update should be provided for all relevant staff where infection rates or audit scores identify poor practice.**

4.4 Antimicrobial prescribing

Antimicrobial prescribing should be carried out in line with evidence-based antimicrobial guidelines. This should improve and reduce the progression of antibiotic resistance and optimise patient outcomes. For organisations to comply with this section they must ensure that there are systems and process in place to ensure a standardised and consistent approach by staff to prescribing. Prescribing should be monitored and reviewed.

Compliance was achieved in this section of the audit tool. Inspectors observed that antimicrobial guidelines were in place and cascaded to medical staff as part of induction training. The unit Clinical Director is part of the antimicrobial stewardship committee and advises medical staff of guidelines on induction. Guidelines are available on the intranet site and as a pocket guide and in November 2014 the BHSCT launched an antimicrobial 'Microguide' app which is available on smart phones (Picture 5).

Picture 5: Antimicrobial prescribing App

The microbiology team carry out a daily antimicrobial ward round, Monday to Friday within the unit. At weekends the microbiology team contact the unit by telephone to provide advice. This ensures that there is direct microbiological advice at the bedside and that antimicrobial prescribing is controlled.

The unit has dedicated pharmacy cover of 30 hours per week. This pharmacist is also the lead critical care pharmacist for all three critical care units of the BHSCT. The pharmacist participates in general ward rounds, but is not able to facilitate participation in microbiology ward rounds. Inspectors were advised that current pharmacy cover for the unit is not in line with core standards for intensive care units. Inspectors noted also that links need to be strengthened between the unit pharmacist and the trust antimicrobial pharmacist to ensure a collaborative approach is taken to improve patient care.

17. **It is recommended that pharmacy cover within the unit is reviewed in line with critical care core standards. Links between the unit pharmacist and the antimicrobial pharmacist should be strengthened to ensure a collaborative approach is taken to improve care.**

A computer aided prescribing tool was available to aid antibiotic prescribing within the unit. Inspectors were informed that the prescribing module of the CareVue system is used to assist in the prescribing of antimicrobials. For each antimicrobial prescribed, medical staff complete an antimicrobial prescribing governance sheet which is audited for compliance with best practice guidelines.

A trust wide antimicrobial steering committee was in place. This team centrally reviews audit results, anti-microbial usage and incidents.

Antimicrobial usage was reviewed in 2012 as part of a Point Prevalence Survey. This identified wide use of Tazocin. From this, a range of specialist audits/interventions have been carried out:

- 2013 – A review of resistant strains of organisms and antibiotics
- Introduction of the Governance Sheet
- 2014 – 93 per cent adherence to good antimicrobial prescribing as defined in 'hospital antibiotics prudent prescribing indicator (HAPPI) tool'
- Presently – Pharmacy/Microbiology audit – Compliance of First Line Empirical Guidelines
- Presently –use of data to identify the tonnage of drugs used per unit. From April 2015, plan to look at overall trends and send information to all areas on drug usage
- Working to STAR - (Stemming the tide of Antibiotic Resistance)

Inspectors were informed that plans are in place to develop a formal routine audit plan on antimicrobial usage.

18. It is recommended that antimicrobial usage should be routinely audited in line with current antimicrobial prescribing guidance.

4.5 Clostridium *difficile* infection (CDI)

The detection and treatment of CDI should be carried out in line with best practice guidance. For organisations to comply with this section they must ensure that guidance on care is in place, staff display knowledge and implement the guidance and adherence to best practice is monitored.

The unit achieved compliance in this section of the audit tool. Inspectors were unable to observe practice at the time of the inspection. Evidence of practice was obtained through review of documentation and speaking with staff.

Up to date guidance and a care pathway on the management of CDI was available and known to staff. A new CDI policy had been developed and updated to include a section on waste management.

Inspectors were informed that over the last year there had been four patients in the unit that have been treated for CDI. Audit tools have been developed to monitor adherence with the management of CDI, to include completion of the care pathway. These are completed by both unit staff and the IPC team independently.

The management of CDI patients was further reviewed as part of the RCA process. All cases that have CDI included on Part 1 of their death certificate will have an RCA conducted.

An antibiotic policy was in place for patients who have or are suspected with CDI. The appropriate antibiotic prescribing is reviewed at daily ward rounds.

The IPCN team record surveillance data on CDI on formic forms. The data reports that currently 63.5 per cent of patients throughout the trust are in isolation at the time of the positive result. For CDI in the CCU, there has been 75 per cent achievement. This data is discussed at the HCAI improvement team meetings. Timely isolation may prove problematic within the unit due to the current limited number of isolation rooms.

19. **It is recommended that the trust should continue to work to improve on the timely isolation of patients either suspected or diagnosed with an alert organism.**

4.6 Surgical site infection (SSI)

Surgical site infection (SSI) is a type of healthcare associated infection, in which a wound infection occurs after an invasive (surgical) procedure. The majority of surgical site infections are preventable. For organisations to comply with this section they must ensure that systems and processes are in place throughout perioperative (pre, intra and post-operative) care to reduce the risk of infection. A programme of surgical site infection surveillance should be in line with DHSSPS guidance.

A review of the trust and unit in the management of SSI identified full compliance in this section of the audit tool. Information was obtained from discussion with infection prevention and control staff, unit staff and a review of individual patients' records.

The trust undertakes mandatory reporting SSI surveillance to the PHA on orthopaedic surgery, neurosurgery and caesarean section delivery. Results of surveillance are reviewed at the Peri Operative Improvement Team.

Inspectors were provided with information that there has been a downward trend in caesarean section SSI rates within the BHSCT from quarter 3 of 2013 to quarter 3 of 2014 however the levels continue to remain above the Northern Ireland C-section average. Inspectors were informed that a midwife had been nominated to provide targeted education in relation to ensuring accurate completion and return of the SSI surveillance forms.

Although inspectors were unable to observe practices in relation to post-operative care, staff knowledge in reducing the risk of infection in the post-operative period was good.

4.7 Ventilated (or tracheostomy) care

Ventilator-associated pneumonia (VAP) is pneumonia that develops 48 hours or longer after mechanical ventilation is given by means of an endotracheal tube or tracheostomy. For organisations to comply with this section they must ensure that guidance on the prevention and care of a patient with VAP is in place and monitored.

Full compliance was achieved in this section of the audit tool. A ventilator care bundle with critical care points was available. Staff were knowledgeable on the prevention and care of a VAP. Five VAPs had been reported between January – December 2014 within the unit, there have been no VAPs since September 2014.

Evidence of action plans when VAPs occur was available and independent compliance auditing was carried out when the infection rates and audit scores identified poor practice. As previously discussed there had been no evidence of action plans to address identified VAPS in the period after the CCICN left the post.

VAP had been chosen as a focus month improvement topic. Inspectors were informed that approximately two out of every three patients are admitted to the regional unit with spinal and neurological injuries. Therefore with these cases, staff are unable to comply with elevation of the head of the bed in line with the care bundle.

4.8 Enteral feeding or tube feeding

Enteral feeding or tube feeding is defined as a mode of feeding that delivers nutrients directly into the stomach, duodenum or jejunum (gastrostomy, jejunostomy, naso/orogastric tubes). For organisations to comply with this section staff should display awareness of guidelines for the management of an enteral feeding system; insertion, set up and care. Adherence to best practice should be monitored.

Compliance was achieved in this section of the audit tool. Evidence of practice was obtained through review of documentation and speaking with staff.

Enteral feeding policy/guidance was available for critical care and the trust. The policy was due for review in October 2014.

Enteral feed was stored and disposed of as per trust policy and in line with best practice. Staff had good knowledge on the management of an enteral feeding system; insertion, administration, set up and care.

When necessary, staff adhered to guidance on the care of a stoma site from the trust stoma nurse, tissue viability nurse or colorectal surgeon. A clean work surface area was provided and only equipment used for enteral feeding was used when decanting, reconstituting and diluting feeds.

Inspectors observed that enteral feeding systems are not labelled however this is not currently part of trust policy; staff are not always recording the size of the nasogastric tube inserted.

Inspectors note that there are currently no systems in place to monitor compliance with enteral feeding protocol and guidance.

20. **It is recommended that the trust enteral feeding policy be updated in line with best practice and a system to monitor compliance with best practice developed.**

4.9 Screening for Meticillin Resistant Staphylococcus Aureus (MRSA) colonisation and decolonisation

The detection and treatment of MRSA should be carried out in line with DHSSPS Best Practice on Screening for MRSA Colonisation (HSS MD 12/2008). For organisations to comply with this section they must ensure that a screening and treatment policy is in place, staff display knowledge of the policy and adherence to best practice is monitored.

The unit achieved compliance in this section of the audit tool. Evidence of practice was obtained through observation, a review of documentation and speaking with staff.

An updated MRSA screening and treatment policy and care pathway is in place. Audit tools have been developed to monitor adherence with the management of MRSA, to include completion of the care pathway and isolation. These audits are completed by ward staff and IPC independently.

Due to the limited number of isolation rooms, one patient colonized with MRSA was not isolated. This case had been risk assessed and reviewed in conjunction with the IPCT.

The management of patients that have had an MRSA bacteraemia were further reviewed as part of the RCA process. The RCA is initiated within five days of the event. Findings of the RCA were reported to unit staff at team meetings and safety briefs, and to the senior management team at the HCAI management meetings. The last MRSA bacteraemia reported within the unit was October 2012. Staff are commended for their hard work in this achievement.

5.0 Inspection Findings: Regional Healthcare Hygiene and Cleanliness Standards and Audit Tool

The Regional Healthcare Hygiene and Cleanliness Standards and Audit Tool provide a common set of overarching standards for all hospitals and other healthcare facilities in Northern Ireland. Inspections using the audit tool gather information from observations in functional areas including, direct questioning and observation of clinical practice and, where appropriate, review of relevant documentation.

The audit tool is comprised of the following sections:

- organisational systems and governance
- general environment
- patient linen
- waste and sharps
- patient equipment
- hygiene factors
- hygiene practices

The section on organisational systems and governance was not reviewed during this unannounced inspection.

Standard 2: General Environment

For organisations to comply with this standard they must provide an environment which is well maintained, visibly clean, free from dust and soilage. A clean, tidy and well maintained environment is an important foundation to promote patient, visitor and staff confidence and support other infection prevention and control measures.

The Regional Healthcare Hygiene and Cleanliness Audit Tool Compliance Levels

General environment	
Reception	81
Corridors, stairs lift	100
Public toilets	95
Ward/department - general (communal)	91
Patient bed area	98
Bathroom/washroom	N/A
Toilet	N/A
Clinical room/treatment room	N/A
Clean utility room	98
Dirty utility room	89
Domestic store	93
Kitchen	N/A
Equipment store	96
Isolation	94
General information	96
Average Score	**94**

The findings in the table above indicate that the general environment and cleaning in the critical care unit was of a good standard.

The hospital entrance and reception is the first area of a hospital building that most users encounter. This area should instil a reassuring and welcoming sense of calm, safety and cleanliness. A high standard of cleanliness in these public areas promotes public confidence in the cleaning standards set by the hospital.

The reception area, public toilets and corridors leading to the wards were generally clean and maintenance and repair was of a good standard. There were chewing gum deposits on the barrier mat at the main reception entrance and the reception floor was dusty, with some temporary repairs made with industrial tape. The wood finish on the reception desk was worn and the receivers of the public phones were dirty.

The key findings in respect of the general environment for the unit are detailed in the following section.

Critical Care Unit

Within the environment section of the audit tool inspectors found good compliance with the standard of cleaning. The issues identified for improvement in this section of the audit tool were:

- Within the unit public toilets, off the waiting area, the base of the hand washing tap and seal required cleaning.
- A bed space in the HDU and one in ICU, had stains on the vinyl cover of the bed mattress and debris in the crevices of the zip cover.
- The temperatures on all three drugs fridges were not consistently completed.
- There was dust and debris on some floors and in some high horizontal surfaces.
- There was some damage to walls, doors, door frames and sanitary ware in either the domestic store, isolation room and dirty utility room.
- In ICU, not all clinical hand wash stations had a poster to advise staff to decontaminate hands with alcohol hand sanitiser following a clinical hand wash (Picture 6). Inspectors were informed that that these posters had recently been removed to facilitate VHP at the time of the outbreak and had mistakenly not been replaced.

Picture 6: Clinical hand wash station without alcohol hand sanitiser poster

Recommendations

21. It is recommended that staff ensure all surfaces including furniture, fixtures and fittings are clean and in a good state of repair.

22. It is recommended that all relevant hand hygiene posters are in place and highlighted to ensure that effective hand hygiene decontamination procedures are followed within the unit.

23. It is recommended that all drug fridge temperatures are consistently recorded.

Standard 3: Patient Linen

For organisations to comply with this standard, patient linen should be clean, free of damage, handled safely and stored in a clean and tidy environment. The provision of an adequate laundry service is a fundamental requirement of direct patient care. Linen should be managed in accordance with HSG 95(18) and once published the final DHSSPS Policy for Provision of Health and Social Care Laundry and Linen Services.

Compliance of Patient Linen

Patient linen	
Storage of clean linen	100
Storage of used linen	100
Laundry facilities	N/A
Average Score	**100**

The above table indicates that the unit achieved full compliance in the management of patient linen; staff are commended for this excellent performance.

Linen was clean, free from damage and stored appropriately in the designated store. Staff demonstrated good knowledge on the handling of clean and used linen.

Standard 4: Waste and Sharps

For organisations to comply with this standard they must ensure that waste is managed in accordance with HTM07-01 and Hazardous Waste (Northern Ireland) Regulations (2005). The safe segregation, handling, transport and disposal of waste and sharps can, if not properly managed, present risks to the health and safety of staff, patients, the public and the environment.

Waste bins in all clinical areas should be labelled, foot operated and encased. This promotes appropriate segregation, and prevents contamination of hands from handling the waste bin lids. Inappropriate waste segregation can be a potential hazard and can increase the cost of waste disposal.

Sharps boxes must be labelled and signed on assembly and disposal. Identification of the origin of sharps waste in the event of spillage or injury to staff is essential. This assists in the immediate risk assessment process following a sharps injury.

Compliance of Waste and Sharps

Waste and sharps	
Handling, segregation, storage, waste	95
Availability, use, storage of sharps	87

4.1 Management of Waste

The above table indicates that the unit achieved good overall compliance in the handling and storage of waste. Issues identified for improvement in this section of the audit tool were:

- The waste disposal room at the entrance to the unit was open throughout the inspection.
- Inspectors observed a number of clinical waste bins were over flowing.
- Paper packaging had been disposed of into a sharps box (Picture 7).

Picture 7: Paper waste in sharps box

4.2 Management of Sharps

The above table indicates that the unit achieved good overall compliance in this standard. Issues identified for improvement in this section of the audit tool were:

- The temporary closure mechanism on two sharps boxes was open.
- The sharps box on the resuscitation trolley in ICU had been used and not changed; the box was not secured to the trolley.

24. **It is recommended that all unit staff follow trust policies in the management of waste and sharps.**

Standard 5: Patient Equipment

For organisations to comply with this standard they must ensure that patient equipment is appropriately decontaminated. The Northern Ireland Regional Infection Prevention and Control Manual, states that all staff that have specific responsibilities for cleaning of equipment must be familiar with the agents to be used and the procedures involved. COSHH regulations must be adhered to when using chemical disinfectants.

Any unit, department or facility which has an item of equipment should produce a decontamination protocol for that item. This should be in keeping with the principles of disinfection and the manufacturer's instructions.

Compliance of Patient Equipment

Patient equipment	
Patient equipment	93

The above table indicates that the unit achieved good overall compliance in this standard.

The issues identified for improvement in this section of the audit tool were:

- Stored patient equipment was not consistently labelled as clean; test laryngoscope blades were not labelled.
- Ventilators were stored in the theatre corridor.
- There were rust spots on the patient warming unit.
- Intubation trolleys had catheters in packaging taped to the frame, one frame had pink staining another had an incontinence pad lining the work surface.
- The suction machine stored on shelving behind the nurses work station was dusty.
- The drawers on two resuscitation trolleys and the door on a personal care trolley were damaged.

25. **It is recommended that general patient equipment must be clean, stored correctly and in a good state of repair. Trigger tape should be used consistently to identify items of equipment that have been cleaned.**

Standard 6: Hygiene Factors

For organisations to comply with this standard they must ensure that a range of fixtures, fittings and equipment is available so that hygiene practices can be carried out effectively.

Compliance of Hygiene Factors

Hygiene factors	
Availability and cleanliness of wash hand basin and consumables	100
Availability of alcohol rub	100
Availability of PPE	100
Materials and equipment for cleaning	97
Average Score	**99**

The above table indicates that the unit achieved good overall compliance in this standard. Clinical hand washing sinks, consumables and PPE were readily available for staff to use. Materials and equipment for cleaned were used correctly and in a good state of repair. The issue identified for improvement in this section of the audit tool is:

- One of the domestic trolleys in ICU domestic store was dusty and stained.

Standard 7: Hygiene Practices

For organisations to comply with this standard they must ensure that healthcare hygiene practices are embedded into the delivery of care and related services.

Compliance of Hygiene Practices

Hygiene practices	
Effective hand hygiene procedures	88
Safe handling and disposal of sharps	92
Effective use of PPE	93
Correct use of isolation	100
Effective cleaning of ward	100
Staff uniform and work wear	90
Average Score	**94**

The above table indicates that the unit achieved good compliance in this standard. Overall staff demonstrated effective hand hygiene practices and adherence to trust policy on the correct isolation of patients and use of PPE.

The issues identified for improvement in this section of the audit tool were:

- Three medical staff attending a patient in HDU did not use all seven steps when washing their hands and did not complete the process with alcohol gel, in line with guidance for the critical care unit.
- The sharps box on the ICU resuscitation trolley had a re-sheathed needle.
- A RN wore gloves and apron to tidy and collect patient equipment then proceeded to carry out a procedure on a patient wearing the same gloves and apron.
- On the first day of the inspection, a female doctor was wearing a necklace and on day two a female doctor had long unsecured hair and stoned earring.

26. **It is recommended that all staff should comply with the WHO five moments for hand hygiene and hand washing should be supplemented with the use of alcohol hand rub.**

27. **It is recommended that all staff adhere to the trust dress code policy and use personal protective equipment as per best practice guidance.**

28. **It is recommended that all staff adhere to the trust sharps safety policy.**

6.0 Summary of Recommendations

The Regional Critical Care Audit Tool

1. It is recommended that the trust continues to work to improve critical care nursing staff levels and ensure that nominated staff have adequate protected time to manage the IPC duties of their role.

2. It is recommended that the trust reviews the barriers to a timely recruitment process and implements changes to avoid delays.

3. It is recommended that infection prevention and control staffing levels are reviewed to facilitate daily visits to the unit.

4. It is recommended that robust action plans are developed and actioned to prevent and control any increase in the incidence of infection within the unit.

5. It is recommended that unit performance data on display is routinely updated.

6. It is recommended that all staff attend mandatory IPC training.

7. It is recommended that a review of the number of the junior doctor rotations within the unit is carried out.

8. It is recommended that the patient and relative information booklet is updated to include; the concept of bare below the elbow and not to bring outside coats into the unit, where appropriate.

9. It is recommended that terminal cleans are signed off by Patient & Client Support Services staff or the nurse in charge, and randomly validated by Patient and Client Support Services supervisors.

10. It is recommended that clinical hand wash stations are used for the purposes of hand washing only.

11. It is recommended that the unit should use the central decontamination unit for sterilisation of medical devices or use single use medical devices, rather than processing locally.

The Regional Clinical Practices Audit Tools

12. It is recommended that all trust policies/guidelines are reviewed and updated as required to ensure continued accuracy of guidance for staff.

13. It is recommended that a programme of training and competency assessment in the management of invasive device is developed for all clinical staff within the unit.

14. It is recommended that all relevant information is recorded in relation to the insertion and ongoing management of invasive devices.

15. It is recommended that all information on the collection of blood cultures is consistently recorded.

16. It is recommended that a system should be initiated to routinely monitor compliance with best practice when collecting blood cultures. An update should be provided for all relevant staff where infection rates or audit scores identify poor practice.

17. It is recommended that pharmacy cover within the unit is reviewed in line with critical care core standards. Links between the unit pharmacist and the antimicrobial pharmacist should be strengthened to ensure a collaborative approach is taken to improve care.

18. It is recommended that antimicrobial usage should be routinely audited in line with current antimicrobial prescribing guidance.

19. It is recommended that the trust should continue to work to improve on the timely isolation of patients either suspected or diagnosed with an alert organism.

20. It is recommended that the trust enteral feeding policy be updated in line with best practice and a system to monitor compliance with best practice developed.

Regional Healthcare Hygiene and Cleanliness Standards and Audit Tool

Standard 2: Environment

21. It is recommended that staff ensure all surfaces including furniture, fixtures and fittings are clean and in a good state of repair.

22. It is recommended that all relevant hand hygiene posters are in place and highlighted to ensure that effective hand hygiene decontamination procedures are followed within the unit.

23. It is recommended that all drug fridge temperatures are consistently recorded.

Standard 3: Patient Linen

No recommendations

Standard 4: Waste and Sharps

24. It is recommended that all unit staff follow trust policies in the management of waste and sharps.

Standard 5: Patient Equipment

25. It is recommended that general patient equipment must be clean, stored correctly and in a good state of repair. Trigger tape should be used consistently to identify items of equipment that have been cleaned.

Standard 6: Hygiene Factors

No recommendations

Standard 7: Hygiene Practices

26. It is recommended that all staff should comply with the WHO five moments for hand hygiene and hand washing should be supplemented with the use of alcohol hand rub.

27. It is recommended that all staff adhere to the trust dress code policy and use personal protective equipment as per best practice guidance.

28. It is recommended that all staff adhere to the trust sharps safety policy.

7.0 Key Personnel and Information

Members of RQIA's Inspection Team

Elizabeth Colgan	Head of Programme Infection Prevention/Hygiene Team
Thomas Hughes	Inspector Infection Prevention/Hygiene Team
Sheelagh O'Connor	Inspector Infection Prevention/Hygiene Team
Margaret Keating	Inspector Infection Prevention/Hygiene Team
Dr Alan Lennon	Chairman RQIA

Trust Representatives attending the Feedback Session

The key findings of the inspection were outlined to the following trust representatives:

Ms B Creaney	Executive Director of Nursing and User Experience
Ms B Owens	Director
Ms J Johnston	Co-director ACCTSS
Ms U St Ledger	Nurse Development Lead
Ms T Clinton	Acting senior manager Critical care
Ms P Sterling	Governance
Ms O O'Neill	Senior Manager Theatres and Sterile Services
Ms J Sheridan	Clinical Co-ordinator
Ms I Thompson	Senior Nurse IPC
Ms R McFarland	Senior Sister RICU
Ms R Gillan	Senior IPCN
Mr F O'Neill	RICU Consultant
Mr B McCloskey	Consultant/ CD Intensive Care
Ms L McBride	PCSS
Ms N Scott	PCSS
Ms C Kearns	PCSS
Mr B Castles	Estates Manager
Mr J Ravey	Estates Officer

Apologies

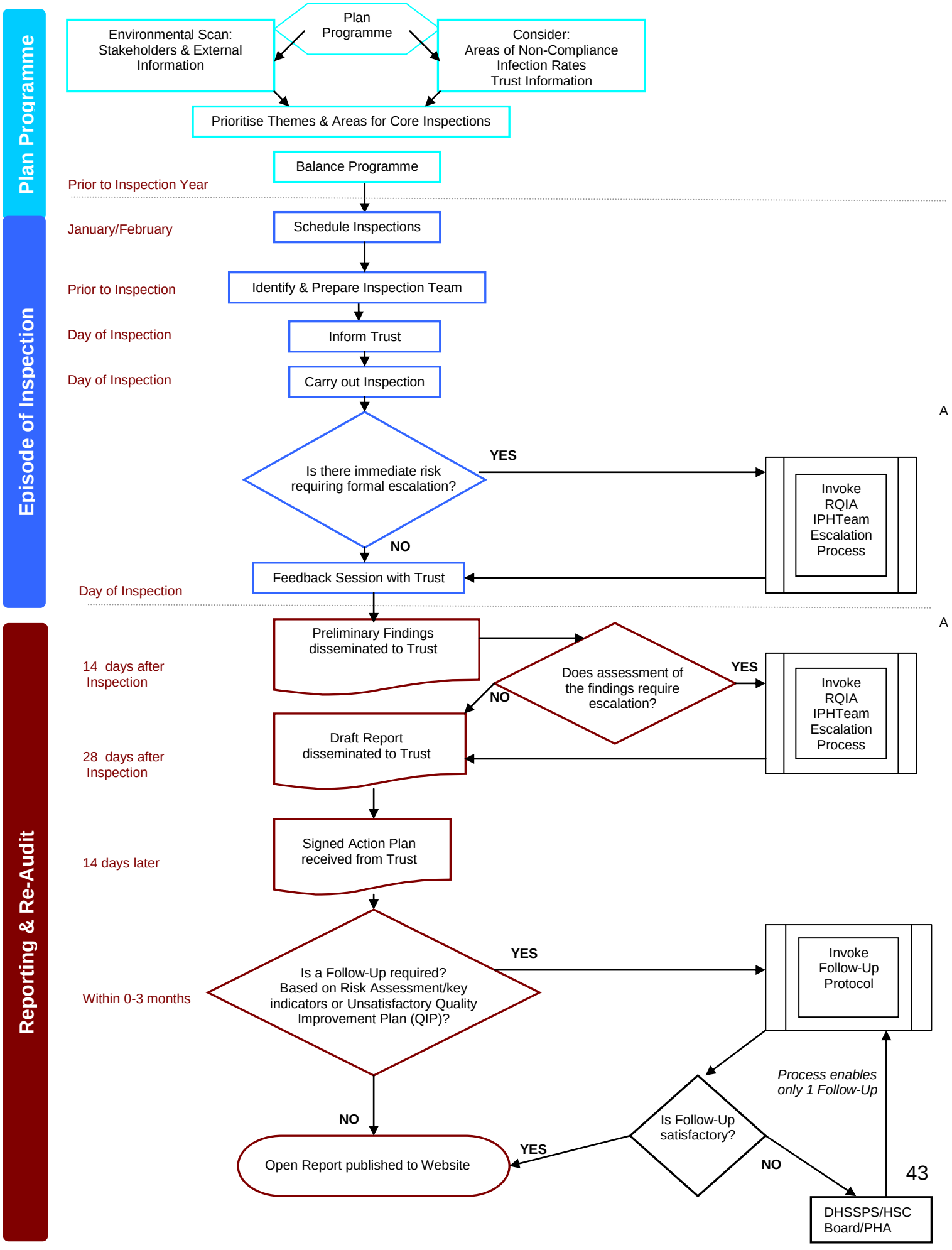
Dr Michael McBride	Chief Executive BHSCT

8.0 Augmented Care Areas

Based on DHSSPS guidance, the augmented care areas currently identified for inclusion in inspections are:

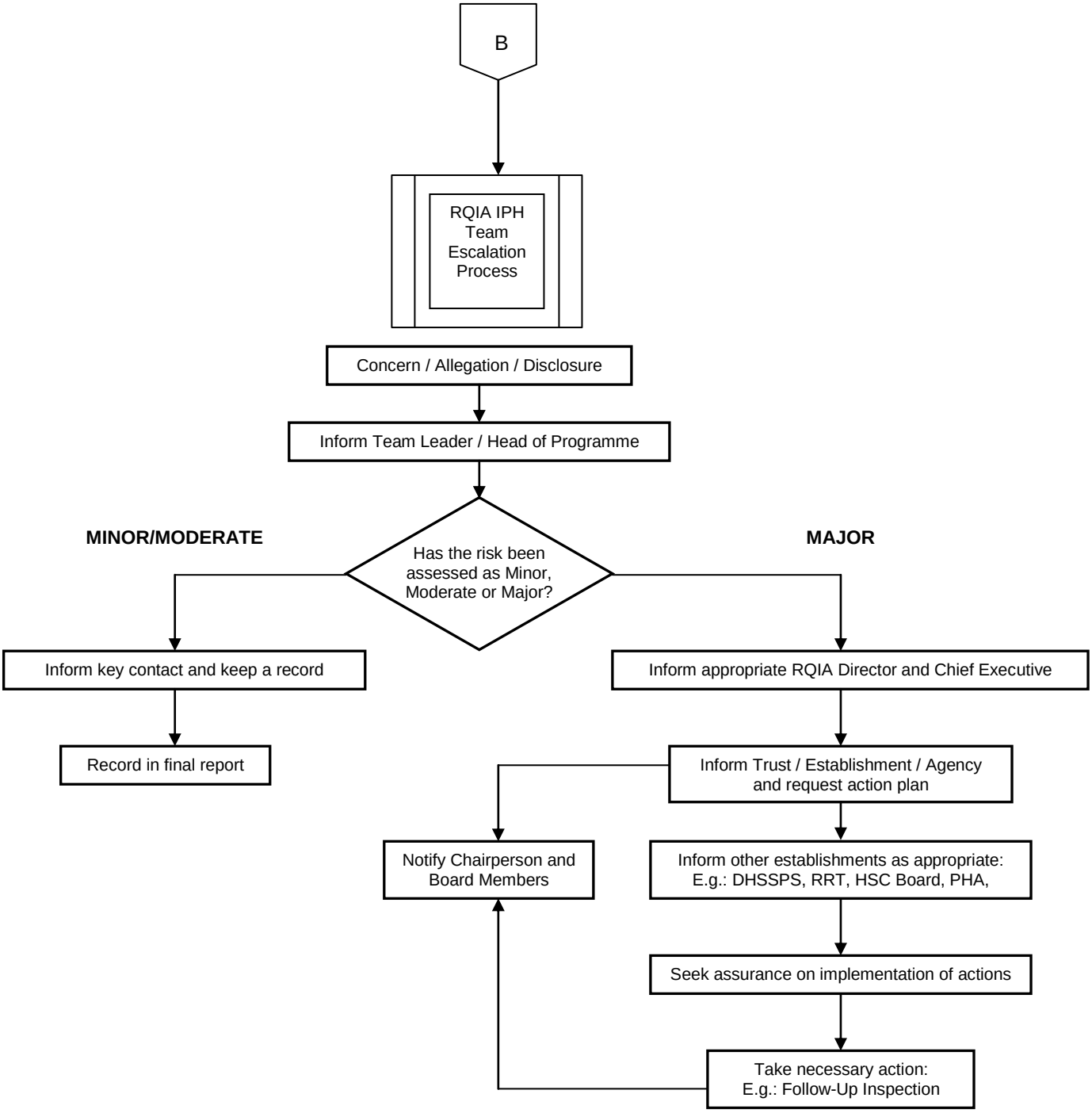
- neonatal and special care baby units
- paediatric intensive care
- all adult intensive care which includes cardiac intensive care
- burns units
- renal (dialysis) units
- renal transplant unit
- high dependency units (HDU)
- haematology
- oncology

9.0 Unannounced Inspection Flowchart



10.0 Escalation Process

RQIA Hygiene Team: Escalation Process



11.0 Quality Improvement Plan

Reference number	Recommendations	Designated department	Action required	Date for completion/ timescale
The Regional Critical Care Audit Tool				
1.	It is recommended that the trust continues to work to improve critical care nursing staff levels and ensure that nominated staff have adequate protected time to manage the IPC duties of their role.	SM/CCo-ord	On-going recruitment process in place. The Trust will review mechanisms to seek substantive funding for an IPC role.	3 Monthly Review On-going
2.	It is recommended that the trust reviews the barriers to a timely recruitment process and implements changes to avoid delays.	ADoN/SM/ CCo-ord	Associate director of nursing, corporate nursing and HR are discussing ways to manage recruitment in a more timely manner.	On-going monthly review
3.	It is recommended that infection prevention and control staffing levels are reviewed to facilitate daily visits to the unit.	IP&C service and user experience service	There is an IP&C team member allocated to the critical care unit and they are available regarding any IP&C issues. Daily visits are not possible at this time.	ongoing
4.	It is recommended that robust action plans are developed and actioned to prevent and control any increase in the incidence of infection within the unit.	Senior Sister/ SM / CCo-ord	The Trust will action recommendations arising from recent SAI reports and ensure on-going monitoring of infection control practices.	6 months
5.	It is recommended that unit performance data on display is routinely updated.	Senior Sister IPCN	Quality boards are updated	Complete

Reference number	Recommendations	Designated department	Action required	Date for completion/ timescale
6.	It is recommended that all staff attend mandatory IPC training.	CCo-ord /Senior Sister /Team Leaders	Targets will be set and reviewed 3 monthly to ensure all staff will attend mandatory IPC	3 Monthly
7.	It is recommended that a review of the number of the junior doctor rotations within the unit is carried out.	Clinical Lead/ Clinical Director/Educational Supervisors	The Trust will liaise with NIMDTA and the Post Graduate Dean to review the number of junior doctor rotations and how infection prevention control training is provided for junior doctors.	Dec 15
8.	It is recommended that the patient and relative information booklet is updated to include; the concept of bare below the elbow and not to bring outside coats into the unit, where appropriate.	Senior Sister IPCN	Patient and relative information booklet will be updated in line with appropriate infection control practices.	On-going Review 3 monthly
9.	It is recommended that terminal cleans are signed off by domestic staff or the nurse in charge, and randomly validated by domestic supervisors.	PCSS Senior sister IPCN	Critical care staff to meet with PCSS staff to agree a process.	3 months
10.	It is recommended that clinical hand wash stations are used for the purposes of hand washing only.	Senior Sister IPCN	This has been highlighted through safety briefs, staff meetings & cited in the newsletter. This will be audited using the handwashing audit which is completed weekly by the CCIP&C champions.	ongoing
11.	It is recommended that the unit should use the central decontamination unit for sterilisation of medical devices or use single use medical devices, rather than processing locally.	CCS/ SM	Current practice of processing items locally will be reviewed to ensure, where possible, single use items are used and reusable items are processed through the CDU.	6 months

Reference number	Recommendations	Designated department	Action required	Date for completion/ timescale
The Regional Clinical Practices Audit Tools				
12.	It is recommended that all trust policies/guidelines are reviewed and updated as required to ensure continued accuracy of guidance for staff.	ADoN/ CCo-ord	The Trusts Standards & Guidelines Committee monitor, review and update Trust policies as appropriate.	Complete
13.	It is recommended that a programme of training and competency assessment in the management of invasive device is developed for all clinical staff within the unit.	CCaNNI Critical Care Management Team Clinical Education Facilitator/Nurse Development Lead/ ICU Medical staff	Current training and competency in the management of invasive devices will be reviewed.	6 months
14.	It is recommended that all relevant information is recorded in relation to the insertion and ongoing management of invasive devices.	Senior Sister/ Clinical Lead	This has been highlighted through safety briefs, staff meetings and cited in the newsletter. This will be audited 3 monthly	complete
15.	It is recommended that all information on the collection of blood cultures is consistently recorded.	Clinical Lead/ Clinical Director	This will be highlighted through critical care management team meeting. This will be audited 3 monthly	3 Months
16.	It is recommended that a system should be initiated to routinely monitor compliance with best practice when collecting blood cultures. An update should be provided for all relevant staff where infection rates or audit scores identify poor practice.	Senior Sister/ IPCN/ Clinical leads.	ANTT training is in place for all medical staff. Blood Culture sampling will form part of ANTT audit through chart review and appropriate corrective actions.	On-going review 3 months

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17.	It is recommended that pharmacy cover within the unit is reviewed in line with critical care core standards. Links between the unit pharmacist and the antimicrobial pharmacist should be strengthened to ensure a collaborative approach is taken to improve care.	Pharmacy Manger SM CCo-ord	SM & CCo-ord will review requirements for pharmacy cover & work collaboratively between two pharmacy groups within ICU	6 months
18.	It is recommended that antimicrobial usage should be routinely audited in line with current antimicrobial prescribing guidance.	Critical Care Management Team / Clinical leads	To be reviewed with CCMT. Clinical leads to discuss a standardised approach to auditing.	3-6months
19.	It is recommended that the trust should continue to work to improve on the timely isolation of patients either suspected or diagnosed with an alert organism.	Senior Nursing Staff/ IPCN	Staff will be informed through safety briefs and local team meetings regarding timely isolation using risk management strategy.	Complete
20.	It is recommended that the trust enteral feeding policy be updated in line with best practice and a system to monitor compliance with best practice developed.	Standards & Guidelines	Critical Care Service Manager to raise at Standards & Guidelines Committee to ensure appropriate Trust staff can take forward recommendations.	3months
Regional Healthcare Hygiene and Cleanliness Standards and Audit Tool Standard 2: Environment				
21.	It is recommended that staff ensure all surfaces including furniture, fixtures and fittings are clean and in a good state of repair.	Senior sister/ Estates	Senior sister to identify a programme for replacement and repair of furniture, fixtures and fittings. This will be escalated to the CC and Service Manager for replacement as required through the	

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			capital bids and procurement process. Follow up to the weekly environmental audits will be carried out to ensure issues of maintenance to the building are escalated appropriately to Estates A working group with Estates will be convened to review and action issues identified within this report.	Complete
22.	It is recommended that all relevant hand hygiene posters are in place and highlighted to ensure that effective hand hygiene decontamination procedures are followed within the unit.	Senior Sister	This has been implemented and completed.	Complete.
23.	It is recommended that all drug fridge temperatures are consistently recorded.	Senior sister	Nursing auxiliaries within the unit are recording the fridge temperatures on a daily basis and this is audited weekly by the senior sister in the unit.	complete
Standard 3: Patient Linen				
	No recommendations.			

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Standard 4: Waste and Sharps				
24.	It is recommended that all unit staff follow trust policies in the management of waste and sharps.	Senior Sister	Staffs have been reminded of importance in relation to waste and sharps. The nurse in charge checks this on a daily basis. The senior sister is currently reviewing the staff training on waste management.	complete
Standard 5: Patient Equipment				
25.	It is recommended that general patient equipment must be clean, stored correctly and in a good state of repair. Trigger tape should be used consistently to identify items of equipment that have been cleaned.	Senior sister CCS	The BHSCT equipment cleaning schedule is used to ensure that equipment is cleaned and stored appropriately. Trigger tape is now in use to identify that equipment has been cleaned.	complete
Standard 6: Hygiene Factors				
	No recommendations			
Standard 7: Hygiene Practices				
26.	It is recommended that all staff should comply with the WHO five moments for hand hygiene and hand washing should be supplemented with the use of alcohol hand rub.	Senior sister/ IPCN All staff in the unit / visiting	Signs to remind staff to use hand gel following hand hygiene using soap and water have been laminated and displayed above the clinical wash hand basins.	Complete

Reference number	Recommendations	Designated department	Action required	Date for completion/ timescale
		staff	Weekly independent hand hygiene audits highlight any issues relating to this and poor compliance is actioned.	
27.	It is recommended that all staff adhere to the trust dress code policy and use personal protective equipment as per best practice guidance.	CCo-ord and Senior Sister	Senior sister with Critical Care Clinical Coordinator reviewed current practice regarding PPE. Staff have been reminded of their responsibilities in relation to this. The SIAF documentation provides quarterly audit results. This is being implemented and reviewed at the Sister and Co-ordinator monthly meeting.	complete
28.	It is recommended that all staff adhere to the trust sharps safety policy.	Senior Sister/team leaders/IPCN	Staff have been reminded of importance in relation to waste and sharps. The nurse in charge checks this on a daily basis.	complete

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