The Regulation and Quality Improvement Authority

RQIA
Unannounced Infection Prevention/Hygiene Augmented Care Inspection

Royal Victoria Hospital Neonatal Unit

18 July and 24 July 2013

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

Contents

1.0 Inspection Summary

An unannounced inspection was undertaken to the Royal Victoria Hospital Neonatal Unit, on 18 July and 24 July 2013. The inspection team comprised of four RQIA inspectors. Details of the inspection team and trust representatives attending the feedback session can be found in Appendix 7.

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

- Regional Neonatal Infection Prevention and Control Audit Tool
- Regional Infection Prevention and Control Clinical Practices Audit Tool
- Regional Healthcare Hygiene and Cleanliness Standards and Audit Tool

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 neonatal intensive care unit at the Royal Hospital was working to comply with the regional 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:

- local governance systems and processes
- layout, design and storage within the unit
- preparation, storage and use of breast milk and infant formula
- independent audit of practice

Inspectors observed the following areas of good practice:

- an augmented care managers' meeting has been initiated. This allows relevant managers to share learning of experiences and practice between units
- a clearing serious infections (CSI) project is in place
- a ward housekeeper is to be employed
- interim refurbishment and planned new build Neonatal Unit
- monitoring of blood culture sampling

The inspection resulted in 46 recommendations for improvement listed in Section 6.

A detailed list of the findings is forwarded to the trust within 14 days of the inspection. This enables early action on all areas within the audit which

require improvement. (There will no longer be a need to return this as an action plan). These 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 HSC Trust (BHSCT), and in particular all staff at the Royal Victoria Hospital for their assistance during the inspection.

2.0 Overall Compliance Rates

The Regional Neonatal 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 Neonatal Infection Prevention and Control Audit Tool Compliance Levels

Areas inspected	Compliance Level
Local governance systems and processes	79
General environment – layout and design	74
General environment – environmental cleaning	88
General environment – water safety	100
Neonatal clinical and care practice	94
Neonatal patient equipment	92
Preparation, storage and use of breast milk and specialised powdered infant formula	76
Average Score	**86**

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

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

Areas inspected	Compliance Level
Aseptic non touch technique (ANTT)	76
Invasive devices	97
Taking blood cultures	87*
Antimicrobial prescribing	83
Clostridium *difficile* infection (CDI)	N/A
Surgical site infection	N/A
Ventilated (or tracheostomy) care	N/A
Enteral feeding or tube feeding	86
Screening for meticillin resistant staphylococcus aaureus (MRSA) colonisation and decolonisation	76*
Average Score	**84**

* 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: Overall Compliance Levels

Neonatal Unit	Compliance Level
Environment	86
Patient linen	91
Waste	92
Sharps	93
Equipment	91
Hygiene factors	96
Hygiene practices	93
Total	**92**

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 Neonatal Infection Prevention and Control Audit Tool

The Regional Neonatal 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 neonatal care. This will assist in the prevention and control of healthcare associated infections.

Regional Neonatal Infection Prevention and Control Audit Tool Compliance Levels

Areas inspected	**Compliance Levels**
Local governance systems and processes	79
General environment – layout and design	74
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General environment – water safety	100
Neonatal clinical and care practice	94
Neonatal patient equipment	92
Preparation, storage and use of breast milk and specialised powdered infant formula	76
Average Score	**86**

The findings indicate that whilst overall compliance was achieved in relation to the Regional Neonatal Infection Prevention and Control Audit Tool, inspectors identified areas for improvement in local governance and the layout and design of the environment.

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 partial compliance in this section of the audit tool.

Leadership and Management

The unit manager displayed good leadership, management and knowledge on infection prevention and control. Within the unit a multi-professional project group, established for over two years and led by a consultant neonatologist, focuses on clearing serious infections (CSI). The unit has dedicated infection prevention and control link nurses. Inspectors were advised that these nurses are not always able to fulfil their link nurse role as part of their normal working hours. On occasion staff come into work on their days off to carry out observational audits of practice, for example hand hygiene.

Infection prevention and control information was cascaded down to staff via e-mail, newsletter and at staff meetings. However infection prevention and control is not a standard item on the staff meeting agenda.

Inspectors were informed that the ratio of nursing and domestic staff is reviewed and increased when required, for example, during an outbreak. Trust bank staff can be used to supplement unit staffing levels. A recruitment programme is underway and new staff are to be employed in the near future.

Staff shortages have resulted in the occasional closure of neonatal beds. Therefore, the number of beds available for neonatal care within the unit has been reduced. The inspectors consider there is the potential for this to occur in the future.

The unit has a dedicated infection prevention and control nurse to advise on the management of infection control issues. Infection prevention and control staff do not visit the unit on a daily basis. Staff are available for advice by telephone, and increase visits when appropriate, for example, outbreak management.

Review of Documentation

A review of documentation found that a process for root cause analysis and follow up was in place for the management of serious adverse incidents. The unit risk management group, led by a consultant neonatologist, meets on a monthly basis to discuss any incidents that have happened within relation to the management of the unit. There was limited evidence to show that staff have been informed of any learning from incidents that have happened, incident reports are not a standard item on the staff meeting agenda.

Accessing infection prevention and control policies and the ability to demonstrate a basic knowledge of these policies is included as part of all staff specific neonatal induction.

There was no trust overarching occupational health/infection prevention and control policy to identify that staff screening maybe carried out, for example vomiting and diarrhea outbreak. Staff screening is discussed as part of the management of MRSA and Tuberculosis.

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.

Not all documentation required for evidence and outlined in the appendix of the audit tool was available on the first day of inspection for staff to reference.

Audit

Local and regional audits 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. Monthly multi-disciplinary unit audits are carried out. Inspectors observed that when a hand hygiene audit compliance rate was 60 per cent, there was no documentation on the audit form or accompanying e-mail to outline an increase in audit frequency.

The infection prevention and control (IPC) team conducted validation audits of hand hygiene. The team found practice to be compliant in that alcohol hand decontamination was carried out following hand hygiene with soap and water.

Audit information is displayed on a ward notice board however the title on one of the documents reviewed did not identify what the audit was carried out on.

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 if infection.

Inspectors noted that infection prevention and control audit and microorganism local surveillance programmes were in place. These monitor and promote improvement in infection prevention and control practices and infection rates. A weekly bacteriologist ward round and local healthcare associated infection (HCAI) improvement group review this data.

The unit submits sepsis data to the the Vermont Oxford Network (VON). The Network maintains a database including information about the care and outcomes of high-risk newborn infants. The database provides unique, reliable data to participating units to use in quality management, process improvement, internal audit and peer review.

Inspectors were informed that when infections are identified, staffing levels can be increased, to assist in the delivery of care and ensure adherence to good infection prevention and control practices.

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.

All unit staff have participated in the trust induction programme on infection prevention and control. Link nurses carry out training on hand hygiene and aseptic non-touch technique. Staff also have access to an ANTT DVD for information.

Staff were aware of action to take when they have developed an infection, thus preventing the transmission of infection.

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 parents and visitors of infection prevention and control precautions; hand hygiene, general visitor information.

The parent information leaflet does not provide information on not visiting when feeling unwell or bringing food into the unit. Parents/visitors receive information on hand hygiene. The leaflet does not explicitly detail not to wear false nails, jewellery; stoned rings, watches and bracelets.

Staff advised that parents receive guidance sessions on hand hygiene. This was documented in neonate notes on the first day of inspection.

3.2 General Environment

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 on the neonate, decontaminate equipment and to ensure effective isolation.

The unit was minimally compliant in the layout and design of the environment.

The Royal Jubilee neonatal unit was constructed in 1934, with two major extensions added (circa 1960/1970). The intensive care unit was opened in December 1993 and in February 2000, the Royal Jubilee NICU amalgamated with Royal Maternity neonatal unit. The number of cots increased to 31 with an additional two rooms in the new special care area, Rooms 1 and 2. Further refurbishment has taken place since August 2011.

Neonatal staffing levels are based on the British Association of Perinatal Medicine (BAPM) nurse to neonate ratio e.g. 1:1/1:2/1:4. The bays are designed for four or twelve spaces, which supports maximum use of staff.

In the intensive care, high dependency and special care baby areas the core clinical space around the incubator/cot area for the delivery of care, was not within 80 per cent of the minimum dimensions recommended by DHSSPS and outlined in the audit tool. In intensive care and high dependency the minimum core space should be 10.8 sqm and in special care baby areas 7.2 sqm. The trust is to incorporate a new neonatal unit into the planned Women and Children's Hospital, it is anticipated that work on this new build will be

completed by 2016/2017. During the inspection, building and refurbishment work was being carried out within the unit. The refurbishment will increase the size of the unit in the interim period until the new build is completed. This will increase the core clinical space around incubators to 3.72 sqm in intensive care and 2.4/2.9 sqm in the special care baby unit (Picture 1).

Picture 1: Interim unit

Inspectors noted that although the space does not meet current recommended requirements, staff are working within these limitations to deliver safe and effective care.

There was one single isolation room available. A two cot nursery for isolation, equipped to intensive care level, was not available for isolation and cohorting. If cohorting for two neonates is required, it is carried out in a four bedded area, and the remaining bed spaces are kept vacant.

Inspectors noted that some rooms, while available were not fit for purpose. For example the incubator cleaning room. The near patient testing equipment was located in the technicians' room rather than in a designated area. The parent rooms have shared sanitary areas rather than dedicated en-suites and there is no separate interview room/ bereavement room available.

Environmental Cleaning

For organisations to comply with this section they must ensure 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 reviewed. Inspectors noted good practice in adhering to current guidelines for cleaning. On questioning, staff displayed good knowledge on cleaning procedures and adherence to guidelines.

The only issue identified for action was that terminal cleans were not signed off by domestic staff when carried out and the cleaning randomly validated by supervisors.

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 fully compliant in relation to water safety. An overarching trust water safety plan and individual unit risk assessment plan were in place. Collection of tap water samples to facilitate microbiological organism testing and analysis is carried out. All taps flush automatically every 12 hours to ensure water is not pooling in the system. Hand washing sinks were used correctly - only for hand washing. Bodily fluids and cleaning solutions were not disposed of down hand washing sinks. Patient equipment was not stored or washed in hand washing sinks. A system is in place to address any issues raised with the maintenance of hand washing sinks and taps.

The estates department are proactively autoclaving taps and replacing clean outlets every three months. A remotely hosted web based system for water testing results is in development and will be in place by September 2013.

All results of water analysis are reported to the trust water safety and usage group. This includes staff from infection prevention and control, microbiology, estates and governance. This group provides reports on the trust water quality to the governance steering committee and ultimately the trust board. The group also seeks assurance from the trust augmented care sub group that all issues related to water safety are addressed at local level.

Neonatal 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 neonate movement, infection control screening policies and adherence to DHSSPS and local guidance on cleansing the neonate.

The unit achieved compliance in this section of the audit tool. During the inspection, staffing levels were in line with the number of incubator/cot spaces to ensure optimal infection prevention and control practices.

An incubator/cot tracking system was in place to record the movement of neonates within and outside the unit. Movement is recorded in the neonates' notes. This can be used by staff to identify neonate placement and movement, particularly in the event of an outbreak of infection.

A local MRSA and pseudomonas screening policy was in place and known to staff. The MRSA decolonisation/treatment policy does not have a caveat in place for use with neonates. An infection prevention and control isolation policy was in place.

There is limited space on the regional neonate transfer form to record neonate infection status. The unit has a BHSCT neonate transfer form however this form does not have a section for staff to record the infection status and infection prevention and control information on the neonate. On transferring the neonate out of the unit, medical staff complete the BadgerNet information system and write a letter to the receiving hospital, these detail the infection status and microbiology results of the neonate.

The trust has developed a communication flow chart which outlines roles/responsibilities of staff when there is a clinical isolate of Pseudomonas aeruginosa. It is the responsibility of the neonatal intensive care consultant, manager/sister-in-charge and infection control team to inform their counterparts in the receiving or transferring units of any clinical isolates.

A procedure for personal care of the neonate was in place and known by staff. Staff used alcohol rub after hand washing when caring for the neonate. Risk factors that cause skin injury were recorded in the neonatal care plan. Staff were aware of the safe handling and removal of maternal secretions from the neonate.

Neonatal Patient Equipment

For organisations to comply with this section they must ensure specialised neonatal 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. Guidelines were in place for the cleaning of specialist equipment within the unit. Specialist equipment inspected was clean and in a good state of repair. Inspectors noted that the specialist equipment cleaning guidelines was not routinely audited by senior nursing staff.

On the first day inspection, guidelines for cleaning of breast pumps did not include the pump frame and stand; pumps were not included on a cleaning schedule. Mothers were taught how to clean breast pumps after use, this was not documented in the neonate notes or monitored by staff. Mothers with an infection were not provided with a dedicated breast pump. Inspectors acknowledge that these issues were addressed.

Staff displayed good knowledge of single use equipment. A procedure was in place for the cleaning of incubators and competency based training was provided for designated staff.

A number of areas for improvement was noted. Incubator/cot mattress audits were not carried out, changing of anti-freezer solution in the cooling mattress was not recorded and a risk assessment for removing the filters on the ventilator equipment has not been completed. The small flexible protective plates at the x-ray machine were covered in plastic and adhesive tape.

Preparation, Storage and Use of Breast Milk and Specialised Powdered Infant Formula

For organisations to comply with this section they must ensure that preparation, storage and use of breast milk and specialised powdered infant formula is carried out correctly. Policies and procedures should be in place, known and implemented by staff.

The unit achieved partial compliance in this section of the audit tool. Guidance was available however there was no risk assessment in place on the storage and use of breast milk and infant formula. Staff discussion and observation of practice indicated a good working knowledge of these guidelines.

Inspectors noted areas of improvement for the storage and transportation of expressed donor milk and formula milk. Temperature checks were not carried out and recorded on the receipt of donor milk and formula milk prepared in the milk kitchen was not transported to the neonatal unit under refrigerated conditions. The designated milk fridge was a domestic rather than commercial fridge, temperature checks were not consistently recorded and the temperature was mainly 8°C, rather than 2 - 5°C. There was a buildup of ice in the expressed breast milk freezer and some temperatures were reading -16° C rather than -18° C to -21° C.

Expressed breast milk was stored by mothers in the kitchen fridge; there was no signage in place to alert mothers of the location of the designated milk fridge. Temperature records were not carried out on the kitchen fridge and foodstuff was stored in the fridge. It was observed that there was no expression date on the donor expressed breast milk. Therefore, inspectors were unable to determine whether the breast milk was expressed within a six month period.

During the administration of expressed breast milk, single dose bolus feeds were not drawn up immediately prior to use. Inspectors observed that 10am and 12midday feeds were drawn up at one time, the 10am feed was administered and the 12midday feed remained in the syringe (covered in syringe packaging) on top of the incubator.

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 has 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 neonatal 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	**Compliance Levels**
Aseptic non touch technique (ANTT)	76
Invasive devices	97
Taking blood cultures	87*
Antimicrobial prescribing	83
Clostridium *difficile* infection (CDI)	N/A
Surgical site infection	N/A
Ventilated (or tracheostomy) care	N/A
Enteral feeding or tube feeding	86
Screening for MRSA colonisation and decolonisation	76*
Average Score	**84**

* Staff practice was not observed during the inspection.

The findings indicate that overall partial compliance was achieved. Inspectors identified that an improvement was required in ANTT, antimicrobial prescribing and screening for MRSA colonisation and decolonisation.

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.

The unit undertakes observational audits. Results viewed showed that staff adhere to good practice.

4.1 Aseptic Non Touch Technique (ANTT)

ANTT is a standardised, best practice and safe aseptic technique used for care 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 partial compliance in this section of the audit tool. An ANTT policy was not in place and available for staff to reference. Inspectors were advised that a draft policy is in development. Once developed this is to be disseminated to staff.

Staff displayed good knowledge and practical skills on the principles of ANTT. Link nurses carry out audit of staff adhered to the ANTT policy and procedure. Audit results viewed evidenced good compliance. Audit of staff adherence to ANTT practice is not independently verified on a yearly basis or more frequently if self-scoring or validation scores are low.

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 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. Bundles of care include management of central vascular catheters and peripheral vascular catheters.

Audit results, viewed by inspectors, showed evidence of unit compliance with care bundles. This was supported by good staff knowledge. Staff training on the insertion and on-going management of invasive devices was evident and accredited by the Queen's University of Belfast. Documentation was available in neonate notes on the management of relevant invasive devices. Audit of staff adherence to good practice was not independently verified on a yearly basis or more frequently if self-scoring or validation scores are low.

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 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.

A trust blood culture policy was available however inspectors were advised that it does not meet the needs of the neonatal unit. The policy is to be further developed to reflect neonatal care. Staff demonstrated good knowledge on how and why to take a blood culture. Audit of staff adherence best practice for taking blood cultures was not independently verified on a yearly basis or more frequently if self-scoring or validation scores are low. The unit has carried out an audit of blood culture sampling in April 2013, this is good practice. However it is not yet part of routine auditing within the unit.

Inspectors noted that blood culture analysis to include the rate of positive blood cultures, incidence of contamination and false positives was recently carried out. This is good practice and should continue within the unit. A new neonatal root cause analysis form for blood and cerebral spinal fluid has also been developed for use.

Antimicrobial prescribing

Antibiotic 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.

Partial compliance was achieved in this section of the audit tool. Inspectors observed that antimicrobial guidelines were in place. This ensures continuity of prescribing within the unit. However, electronic/computer aided prescribing tools to aid prescribing were not available; a ward based pharmacist was in place. Inspectors were informed that an audit of antimicrobial use was carried out within the unit. Although planned this audit is not yet part of routine auditing within the unit. The audit does not include assessment of multidisciplinary information provided to patients on antimicrobial usage.

Notes and medicine Kardexes (record management systems) reviewed evidenced that information to guide prescribing of antimicrobials was recorded. This included the neonate antimicrobial history, indication to prescribe an antimicrobial, and the planned duration of the antimicrobial.

As part of good practice, antimicrobial prevalence audits have been carried out in the unit over the last number of years. These include the European Surveillance of Antimicrobial Consumption (ESAC) 2011, the Antibiotic Resistance and Prescribing in European Children (ARPEC) 2012 and Point Prevalence Survey (PPS) 2012.

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

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, observation and speaking with staff.

A policy/guidance was available and staff have received training on enteral feeding as part of the staff neonatal induction programme. Enteral feed is stored, administered and disposed of as per trust policy and in line with best practice. Staff displayed good knowledge on the management of an enteral feeding system; insertion, set up and care. When necessary, staff adhere to guidance on the care of a stoma site from the trust stoma nurse or tissue viability nurse.

Preparation, decanting, reconstituting or diluting of feeds is not done within the unit.

Compliance with the enteral feeding protocol and guidance was not audited and actions plans developed where issues are identified. Compliance was not independently verified on a yearly basis or more frequently if self-scoring or validation scores are low, with action plans devised.

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 partial 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.

Guidance is available and known to staff on the admission of the neonate, this includes admission screening. Screening is carried out in line with DHSSPS Best Practice on Screening for MRSA Colonisation. All babies admitted to the unit are screened on the day of admission for organisms and sensitivities. In conjunction with this all babies will be swabbed weekly for pseudomonas, serratia and enterobacter.

An adult MRSA policy and care pathway was available and known by staff. Inspectors were informed that these are under review to meet the needs of the neonate.

Adherence to the MRSA policy and care pathway was not audited. Compliance was not independently verified on a yearly basis or more frequently if self-scoring or validation scores are low, with action plans devised.

Infection control audits were not carried out on achievement of isolation.

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.

Compliance of General Environment

General environment	**Compliance levels**
Reception	80
Corridors, stairs lift	77
Public toilets	79
Unit/department - general (communal)	82
Patient bed area	96
Bathroom/washroom	N/A
Toilet (staff)	91
Clinical room/treatment room	N/A
Clean utility room	70
Dirty utility room	83
Domestic store	90
Kitchen	90
Equipment store	100
Isolation	95
General information	83
Average Score	**86**

The findings in the table above indicate that the general environment and cleaning in the Neonatal Unit was of a good standard, some improvement is required in public and communal areas.

The Neonatal Unit is a combined neonatal and special care baby unit. It is based in the Royal Jubilee Maternity Hospital located on the Royal Group of Hospitals site in Belfast. It was constructed in 1934, with two major extensions added (circa 1960/1970) and provides the entire range of pre and post-natal maternity services. The neonatal unit incorporating NICU is located within the main block.

The NICU was opened in December 1993 with a large intensive care room (ICU) and three rooms with four cots. This unit is funded for 9 level 1 cots, 7 level 2 and 15 level 3. In February 2000, the Royal Jubilee NICU amalgamated with Royal Maternity neonatal unit, and cots increased to 31 with an additional two rooms in the new special care area, Rooms 1 and 2. Further refurbishment has taken place since August 2011.

Inspectors observed that more attention to detail when cleaning the main reception, corridor and stairs is required. At the entrance to the maternity building, the cigarette and waste bins were overflowing, food packaging and cigarette butts littered the ground (Picture 2).

Picture 2: Cigarette butts on bin at entrance to unit

Dust was observed on skirting, fire extinguishers, external windows, wet floor signs, stairs and the toilet brush and radiator of the public toilet. In the public toilet, the light switch was dirty, the ceiling was stained and labels on bins were grubby and worn. Hand towel dispensers were empty, wet toilet paper littered the floor and blocked the hand washing sink. Trust representatives advised that hand towels were continually being disposed down the toilet causing blockages, therefore electric hand dryers have been installed and the dispensers are to be removed.
Paint damage was noted to walls, stair rails and doors. In the corridor leading to the neonatal unit a light fitting was missing, wet floor signs were stored at the main reception.

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

Neonatal Unit

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

- damage to wall, skirting, pipe and door paint work
- debris in light fittings in the parents' room and visitors' toilet
- stained ceiling tiles in the clean and dirty utility rooms
- storage of sharps boxes and supplies on open shelves and on the floor in the dirty utility room. This can increase the risk of possible contamination of aerosol spray from the sluice
- insufficient storage facilities and no work surface in the clean utility room resulting in boxes of supplies stored on top of the drugs' fridge (Picture 3)

Picture 3: Insufficient storage

- drugs' fridge temperature checks were not recorded, there was debris in the seal on the drugs/TPN fridge and paper labels attached to fridge doors
- no dedicated hand washing sink in the domestic store and dirty utility room
- dust on external windows in the parents' sitting room and clean utility room, the fins of the radiator in the parents toilet, the base of the cupboards in the clean utility room, the air vent in the room 5C (used for isolation during the inspection) and around the kitchen window expelair unit
- grubby and stained 'easy chairs' in the parents' sitting room
- lack of an inoculation injury poster for staff, a poster in the visitors' toilet on hand hygiene and leaflets on hand hygiene for visitors
- more detailed nursing cleaning schedule. A 'cleaning of the bed space' policy is currently in draft form

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).

Compliance of Patient Linen

Patient linen	**Compliance levels**
Storage of clean linen	88
Storage of used linen	94
Laundry facilities	N/A
Average Score	**91**

The above table indicates that the unit achieved good overall compliance in the management of patient linen.

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.

Issues identified for improvement in this section were:

- in the linen store, there was debris in the light fitting, walls were scuffed and the inside frame of the external window was dusty
- staff did not follow trust policy for the disposal of linen. Used linen was placed in both red and white used linen bags. Soiled linen was placed in a water soluble bag which was inside a small fire retardant bin

Standard 4: Waste and Sharps

For organisations to comply with this standard they must ensure that waste is managed in accordance with HTM07-01and 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	Compliance levels
Handling, segregation, storage, waste	92
Availability, use, storage of sharps	93

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:

- household waste was noted in a clinical waste bin
- no household waste bin was available in the dirty utility room
- some stained waste bins and worn labels

4.2 Management of Sharps

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

- the temporary closure mechanism on two sharps boxes was not in place

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	Compliance levels
Patient equipment	91

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:

- there was inconsistent use of trigger tape on stored equipment to identify that equipment was stored clean and ready for use
- the blood gas machine was stained
- the base of the resuscitation trolley was dusty
- there was a dusty incubator awaiting repair in the clean equipment store. This equipment store had a notice stating 'this room is strictly for cleaned equipment only'
- on a stored Tecotherm Neo machine, leads were attached to a bottle of liquid (Picture 4)

Picture 4: Tecotherm Neo machine, leads and bottle attached

Standard 6: Hygiene Factors

For organisations to comply with this standard they must ensure that a range of fixtures, fittings and equipment (Picture 5) is available so that hygiene practices can be carried out effectively.

Compliance of Hygiene Factors

Hygiene factors	**Compliance levels**
Availability and cleanliness of wash hand basin and consumables	100
Availability of alcohol rub	97
Availability of PPE	100
Materials and equipment for cleaning	93
Average Score	**96**

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

Picture 5: Hand hygiene facilities

There were a number of issues identified for improvement in this section of the audit tool:

- alcohol dispensers at the entrance to the ward were wall mounted on wooden boards. The boards were damaged and had holes insitu
- in the dirty utility and incubator cleaning rooms, disinfectants were not held under locked conditions in line with COSHH guidance
- in the domestic store, the inside of the cleaning trolley required cleaning

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	**Compliance levels**
Effective hand hygiene procedures	93
Safe handling and disposal of sharps	92
Effective use of PPE	100
Correct use of isolation	77
Effective cleaning of unit	100
Staff uniform and work wear	97
Average Score	**93**

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:

- two members of nursing staff did not wash or decontaminate hands before donning gloves
- a re-sheathed needle was observed in a sharps box
- nursing staff did not use separate colour coded equipment, staff used a sharps box as a bucket for cleaning purposes. The same bucket was used in all areas and returned to the dirty utility room
- care plans in use for neonates with infection required more detail on the infection prevention and control practices in place
- a member of nursing staff wore stoned ear rings

6.0 Summary of Recommendations

The Regional Neonatal Care Audit Tool

1. Infection prevention and control and incidents should become a standard item on the staff meeting agenda.

2. Link nurse staff should have protected time to carry out their role.

3. When infection prevention and control audit compliance is minimal, an increase in audit frequency should be documented.

4. Neonatal staffing levels within the unit should continue to be reviewed.

5. Infection prevention and control staffing levels should be reviewed to facilitate daily visits to the unit.

6. The trust should development an overarching occupational health policy.

7. Information leaflets should be updated to contain information on not visiting when feeling unwell or bringing food into the unit. Leaflets should also detail not to wear false nails, jewellery; stoned rings, watches and bracelets.

8. The layout and design of the unit should be reviewed for maximum space utilisation. Adherence to core clinical space recommendations and an improvement in the facilities available within the unit should be reviewed as part of any refurbishment/new build planning.

9. Terminal cleans should be signed off by domestic staff when carried out and the cleaning randomly validated by supervisors.

10. The MRSA decolonisation/treatment policy should be updated for use with neonates.

11. A review of the Regional Incubator Transfer form and trust transfer form should be carried out to ensure all infection control information can be recorded.

12. All specialist equipment should be cleaned and adherence to cleaning guidelines routinely audited.

13. Mothers' education on how to clean equipment should be documented.

14. A risk assessment for the storage and use of breast milk and infant formula should be carried out.

15. Milk fridge and freezer temperature checks must be recorded on a daily basis. Deviations from the recommended temperature ranges should be actioned immediately and details recorded.

16. Expressed breast milk should be stored in the designated milk fridge. Expressed breast milk ought to be administered in line with current best practice guidelines.

17. A system should be in place to identify that donor expressed breast milk is expressed no longer than six months prior to use.

The Regional Clinical Practices Audit Tools

18. The draft ANTT policy should be completed and disseminated to staff.

19. Audit of staff adherence to ANTT practice, invasive devices and blood culture technique should be independently verified on a yearly basis or more frequently if self-scoring or validation scores are low.

20. Auditing of blood culture sampling should become part of routine practice.

21. Antibiotic usage should be monitored at unit level as part of routine practice and include assessment of multidisciplinary information provided to patients. This should be assisted with electronic/computer aided prescribing tools.

22. Compliance with the enteral feeding protocol and guidance should be audited and actions plans developed were issues are identified. Independent verification should be carried.

23. The review of the adult MRSA policy and care pathway should be completed to meet the needs of the neonate.

24. Adherence to the MRSA policy and care pathway should be audited. Independent verification should be carried.

25. Infection control audits should be carried out on achievement of isolation.

Regional Healthcare Hygiene and Cleanliness Standards and Audit Tool

Standard 2: Environment

26. Staff should ensure all surfaces including furniture, fixtures and fittings are clean and free from dust.

27. A maintenance programme should be in place to ensure all building repairs are carried out.

28. Storage facilities within the unit should be reviewed and improved.

29. Drugs fridge temperature checks should be carried out and recorded on a daily basis. Drugs fridges should be kept clean and free from paper labels.

30. Hand washing sinks should be available in the domestic store and dirty utility room.

31. Information posters and leaflets should be readily available for staff and patients; inoculation injury and hand hygiene.

32. The draft 'cleaning of the bed space' policy should be finalised and detailed nurse cleaning schedules developed.

Standard 3: Patient Linen

33. The linen store should be free from dust, debris and in a good state of repair.
34. Used and soiled linen should be segregated as per trust policy. Soiled linen should be stored in the appropriate linen receptacle.

Standard 4: Waste and Sharps

35. All staff should ensure the correct segregation of waste.

36. Waste bins should be clean and readily available for use. Waste bin labels should be intact.

37. All sharps box temporary closure mechanisms should be in place when sharps boxes are not in use.

Standard 5: Patient Equipment

38. Patient equipment must be clean. Stored patient equipment should be ready for use with trigger tape insitu to identify that it has been cleaned.

39. Incubators that are dusty and waiting repair should not be stored in the clean equipment store. Incubators should be cleaned prior to repair.

Standard 6: Hygiene Factors

40. Damaged wooden alcohol dispensers wall mounts should be repaired and the inside of the domestic trolley cleaned.

41. All chemicals should be stored in a locked, inaccessible area in accordance with COSHH regulations.

Standard 7: Hygiene Practices

42. All staff should carry out hand hygiene prior to donning gloves.

43. Needles should not be re-sheathed.

44. Nursing staff should be updated on the domestic colour coded system, cleaning equipment and the procedure for routinely changing cleaning equipment.

45. Care plans in use for neonates with infection required more detail on the infection prevention and control practices in place.

46. All staff should adhere to the trust dress code policy.

7.0 Key Personnel and Information

Members of RQIA's Inspection Team

Lyn Gawley	Inspector Infection Prevention/Hygiene Team
Sheelagh O'Connor	Inspector Infection Prevention/Hygiene Team
Margaret Keating	Inspector Infection Prevention/Hygiene Team
Thomas Hughes	Inspector Infection Prevention/Hygiene Team

Peer Reviewer

Naomi Baldwin	Lead Nurse, Northern Health and Social Care Trust

Trust Representatives attending the Feedback Session

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

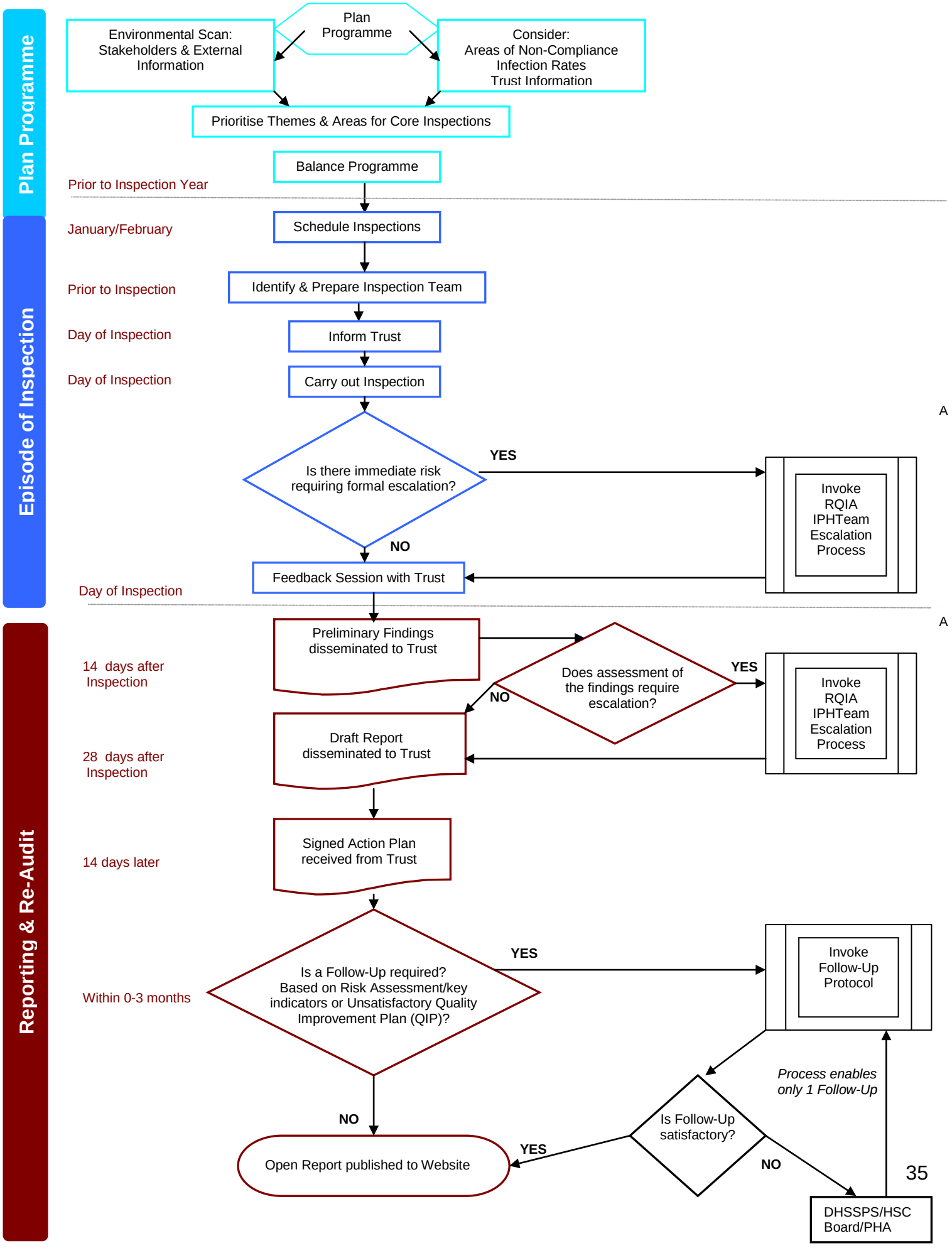
Brenda Creaney	Executive Director of Nursing
Brian Barry	Director SH & Women's Health Directorate
David Millar	Consultant Neonatologist
Alison Verner	Consultant Neonatologist
Stanley Craig	Consultant Neonatologist
David Robinson	Co Director, Nursing
Elizabeth Bannon	Co Director, Maternity and Women's Services
Phil Farrell	Midwife Manager
Irene Thompson	Lead Nurse, Infection Prevention and Control
Nancy Scott	Senior Manager, Patient and Client Support Services (PCSS)
Caroline Smyth	Senior Infection Prevention and Control Nurse
Sandra Cairns	Sister, Neonatal ICU
Gillian Owen	Sister, Neonatal ICU
Sally Hamilton	Neonatal Discharge Co-ordinator
Bernie Porter	Operation Manager, PCSS
Lynda McBride	Patient and Client Support Services
Josie Gibson	Staff Nurse, Neonatal ICU
Emma Rooney	Staff Nurse, Neonatal ICU
Katrina Shaw	Staff Nurse, Neonatal ICU
Ann Brogan	Staff Nurse, Neonatal ICU
Julia Courtney	Specialist Trainee 5
Una Robinson	Specialist Doctor

8.0 Augmented Care Areas

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

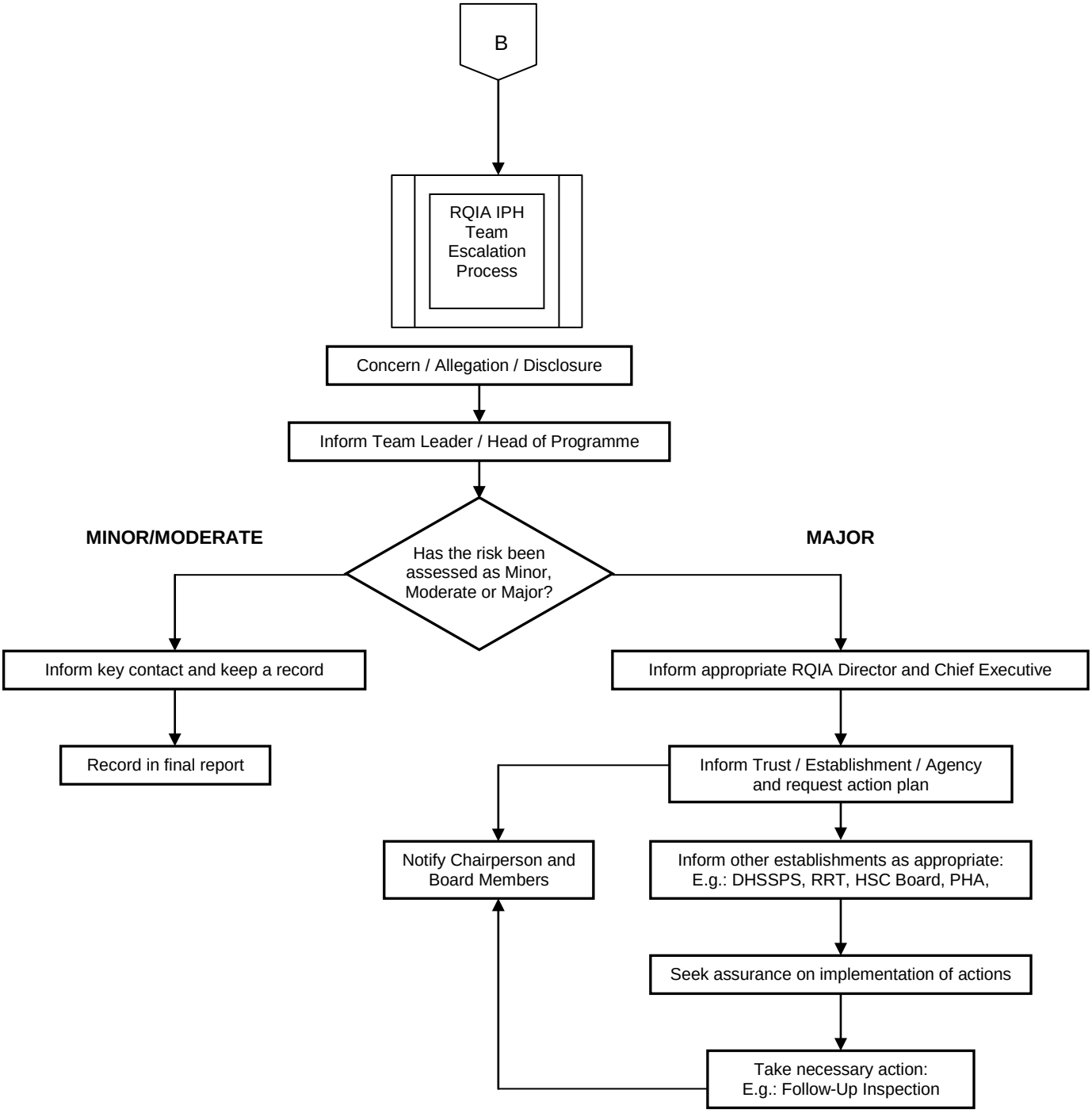
- neonatal and special care baby units
- paediatric intensive care
- all adult intensive care which includes cardiac intensive care
- burns units
- renal (dialysis) units
- renal transplant unit
- high dependency units (HDU)
- haematology
- oncology

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 Neonatal Care Audit Tool				
1.	Infection prevention and control and incidents should become a standard item on the staff meeting agenda.			
2.	Link nurse staff should have protected time to carry out their role			
3.	When infection prevention and control audit compliance is minimal, an increase in audit frequency should be documented.			
4.	Neonatal staffing levels within the unit should continue to be reviewed.			
5.	Infection prevention and control staffing levels should be reviewed to facilitate daily visits to the unit.			
6.	The trust should development an overarching occupational health policy.			
7.	Information leaflets should be updated to contain information on not visiting when feeling unwell or bringing food into the unit. Leaflets should also detail not to wear false nails, jewellery; stoned rings, watches and bracelets.			

8.	The layout and design of the unit should be reviewed for maximum space utilisation. Adherence to core clinical space recommendations and an improvement in the facilities available within the unit should be reviewed as part of any refurbishment/new build planning.			
9.	Terminal cleans should be signed off by domestic staff when carried out and the cleaning randomly validated by supervisors.			
10.	The MRSA decolonisation/treatment policy should be updated for use with neonates.			
11.	A review of the Regional Incubator Transfer form and trust transfer form should be carried out to ensure all infection control information can be recorded.			
12.	All specialist equipment should be cleaned and adherence to cleaning guidelines routinely audited.			
13.	Mothers' education on how to clean equipment should be documented.			
14.	A risk assessment for the storage and use of breast milk and infant formula should be carried out.			
15.	Milk fridge and freezer temperature checks must be recorded on a daily basis. Deviations from the recommended temperature ranges should be actioned immediately and details recorded.			

16.	Expressed breast milk should be stored in the designated milk fridge. Expressed breast milk ought to be administered in line with current best practice guidelines.			
17.	A system should be in place to identify that donor expressed breast milk is expressed no longer than six months prior to use.			
The Regional Clinical Practices Audit Tools				
18.	The draft ANTT policy should be completed and disseminated to staff.			
19.	Audit of staff adherence to ANTT practice, invasive devices and blood culture technique should be independently verified on a yearly basis or more frequently if self-scoring or validation scores are low.			
20.	Auditing of blood culture sampling should become part of routine practice.			
21.	Antibiotic usage should be monitored at unit level as part of routine practice and include assessment of multidisciplinary information provided to patients. This should be assisted with electronic/computer aided prescribing tools.			
22.	Compliance with the enteral feeding protocol and guidance should be audited and actions plans developed were issues are identified. Independent verification should be carried.			

23.	The review of the adult MRSA policy and care pathway should be completed to meet the needs of the neonate.			
24.	Adherence to the MRSA policy and care pathway should be audited. Independent verification should be carried.			
25.	Infection control audits should be carried out on achievement of isolation.			
Regional Healthcare Hygiene and Cleanliness Standards and Audit Tool Standard 2: Environment				
26.	Staff should ensure all surfaces including furniture, fixtures and fittings are clean and free from dust.			
27.	A maintenance programme should be in place to ensure all building repairs are carried out.			
28.	Storage facilities within the unit should be reviewed and improved.			
29.	Drugs fridge temperature checks should be carried out and recorded on a daily basis. Drugs fridges should be kept clean and free from paper labels.			
30.	Hand washing sinks should be available in the domestic store and dirty utility room.			

31.	Information posters and leaflets should be readily available for staff and patients; inoculation injury and hand hygiene.			
32.	The draft ‘cleaning of the bed space’ policy should be finalised and detailed nurse cleaning schedules developed.			
Standard 3: Patient Linen				
33.	The linen store should be free from dust, debris and in a good state of repair.			
34.	Used and soiled linen should be segregated as per trust policy. Soiled linen should be stored in the appropriate linen receptacle.			
Standard 4: Waste and Sharps				
35.	All staff should ensure the correct segregation of waste.			
36.	Waste bins should be clean and readily available for use. Waste bin labels should be intact.			
37.	All sharps box temporary closure mechanisms should be in place when sharps boxes are not in use.			
Standard 5: Patient Equipment				
38.	Patient equipment must be clean. Stored patient equipment should be ready for use with trigger tape insitu to identify that it has been cleaned.			

39.	Incubators that are dusty and waiting repair should not be stored in the clean equipment store. Incubators should be cleaned prior to repair.			
Standard 6: Hygiene Factors				
40	Damaged wooden alcohol dispensers wall mounts should be repaired and the inside of the domestic trolley cleaned.			
41	All chemicals should be stored in a locked, inaccessible area in accordance with COSHH regulations.			
Standard 7: Hygiene Practices				
42.	All staff should carry out hand hygiene prior to donning gloves.			
43.	Needles should not be re-sheathed.			
44.	Nursing staff should be updated on the domestic colour coded system, cleaning equipment and the procedure for routinely changing cleaning equipment.			
45.	Care plans in use for neonates with infection required more detail on the infection prevention and control practices in place.			
46.	All staff should adhere to the trust dress code policy.			

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