



**Health  
Information  
and Quality  
Authority**

An tÚdarás Um Fhaisnéis  
agus Cáilíocht Sláinte

# **Report of the unannounced inspection at the Rotunda Hospital, Dublin.**

Monitoring programme undertaken against the National Standards for the prevention and control of healthcare-associated infections in acute healthcare services

Date of on-site inspection: 07 December 2017



## About the Health Information and Quality Authority

The Health Information and Quality Authority (HIQA) is an independent authority established to drive high-quality and safe care for people using our health and social care services in Ireland. HIQA's role is to develop standards, inspect and review health and social care services and support informed decisions on how services are delivered.

HIQA aims to safeguard people and improve the safety and quality of health and social care services across its full range of functions.

HIQA's mandate to date extends across a specified range of public, private and voluntary sector services. Reporting to the Minister for Health and engaging with the Minister for Children and Youth Affairs, HIQA has statutory responsibility for:

- **Setting Standards for Health and Social Services** — Developing person-centred standards, based on evidence and best international practice, for health and social care services in Ireland.
- **Regulation** — Registering and inspecting designated centres.
- **Monitoring Children's Services** — Monitoring and inspecting children's social services.
- **Monitoring Healthcare Safety and Quality** — Monitoring the safety and quality of health services and investigating as necessary serious concerns about the health and welfare of people who use these services.
- **Health Technology Assessment** — Providing advice that enables the best outcome for people who use our health service and the best use of resources by evaluating the clinical effectiveness and cost-effectiveness of drugs, equipment, diagnostic techniques and health promotion and protection activities.
- **Health Information** — Advising on the efficient and secure collection and sharing of health information, setting standards, evaluating information resources and publishing information about the delivery and performance of Ireland's health and social care services.



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## 1. Introduction

HIQA monitors the implementation of the *National Standards for the prevention and control of healthcare-associated infections in acute healthcare services*<sup>1</sup> in public acute hospitals in Ireland to determine if hospitals have effective arrangements in place to protect patients from acquiring healthcare-associated infection. The *National Standards for the prevention and control of healthcare-associated infections in acute healthcare services* will be referred to as the National Standards in this report.

In 2017, HIQA commenced a revised monitoring programme against the National Standards. The aim of this revised monitoring programme is to assess aspects of the governance, management and implementation of designated programmes to prevent and control healthcare-associated infections in hospitals. This monitoring programme comprises Phases One, Two and Three which will be described next.

The National Standards were updated in 2017 and therefore supersede the previous version. Hospitals should work towards implementing these revised National Standards.

### Phase One

All public acute hospitals were requested to complete and return a self-assessment tool to HIQA during April and May 2017. The self-assessment tool comprised specific questions in relation to the:

- hospital infection prevention and control programme and associated oversight arrangements
- training of hospital personnel to implement policies, procedures, protocols, guidelines and evidence-based practice in relation to the prevention and control of infection
- systems in place to detect, prevent, and respond to healthcare-associated infections and multidrug-resistant organisms.

The hospital Chief Executive Officer or General Manager and the Health Service Executive (HSE) Hospital Group Chief Executive Officer were asked to verify that the information provided to HIQA accurately reflected the infection prevention arrangements within the hospital at that time.

### Phase Two

Using a revised assessment methodology HIQA commenced a programme of unannounced inspections against the National Standards in public acute hospitals in May 2017.

Specific lines of enquiry were developed to facilitate monitoring in order to validate some aspects of self-assessment tools submitted by individual hospitals. The lines of enquiry which are aligned to the National Standards are included in this report in Appendix 1.

Further information can be found in the *Guide to the monitoring programme undertaken against the National Standards for the prevention and control of healthcare-associated infections*<sup>2</sup> which was published in May 2017 and is available on HIQA's website: [www.hiqa.ie](http://www.hiqa.ie)

### **Phase Three**

Phase Three of this monitoring programme will focus on the reprocessing of reusable medical devices and HIQA will commence onsite inspections in this regard in 2018.

### **Information about this inspection**

This inspection report was completed following an unannounced inspection carried out at the Rotunda Hospital by Authorised Persons from HIQA; Noreen Flannelly-Kinsella, Aileen O' Brien and Emma Cooke. The inspection was carried out on 07 December 2017 between 09.50hrs and 17.15hrs.

Prior to this inspection, authorised persons reviewed the hospital's completed self-assessment tool and related documentation submitted to HIQA earlier in May 2017.

During this inspection inspectors spoke with hospital managers and staff, and members of the Infection Prevention and Control Team. Inspectors requested and reviewed documentation and data and observed practice within the clinical environment in a small sample of clinical areas which included:

- The Neonatal Unit
- A postnatal ward

Inspection findings presented in this report are aligned to HIQA's monitoring lines of enquiry as shown in Appendix 1. The inspection team used specifically designed monitoring tools during this inspection in relation to aspects of:

- Prevention of invasive device-related infection (Section 2.5.1)
- Prevention and control of transmission of antimicrobial-resistant bacteria (Section 2.6.1)
- Safe injection practice (Section 2.6.2)
- Prevention of aspergillosis during dust-generating building, renovation and maintenance works (Section 2.6.3)

HIQA would like to acknowledge the cooperation of the hospital management team and all staff who facilitated and contributed to this unannounced inspection.



## 2. Findings at the Rotunda Hospital

The following sections 2.1 to 2.8 present the general findings of this unannounced inspection which are aligned to monitoring lines of enquiry.

### 2.1 Governance

#### Line of enquiry 1.1

The hospital has formalised governance arrangements with clear lines of accountability and responsibility around the prevention and control of healthcare-associated infections.

#### Governance arrangements

The Rotunda Hospital is a voluntary specialist maternity hospital and is part of the Royal College of Surgeons in Ireland (RCSI) Hospital Group.

Inspectors found that there were clear lines of accountability and responsibility in relation to governance and management arrangements for the prevention and control of healthcare-associated infection at the Rotunda Hospital, Dublin. The Master\* was accountable for the overall management and monitoring of the prevention and control of healthcare-associated infection and for upward reporting to the hospital's Board of Governors. The Master also attended monthly performance meetings with the Chief Executive Officer of the RCSI hospital group.

The Infection Prevention and Control Team at the Rotunda Hospital reported to the hospital's Infection Prevention and Control Committee on a quarterly basis. The Infection Prevention and Control Committee had overall responsibility for co-ordinating and providing oversight of the infection prevention and control programme. The committee, chaired by the Master, had relevant multidisciplinary team membership which included a consultant microbiologist, members of the infection prevention and control and executive management teams, senior clinicians, nursing, quality and safety, corporate services and public health.

The committee had defined terms of reference detailing the membership of the group, quorum, reporting relationships and frequency of meetings. Terms of reference showed that other hospital groups such as a neonatal infection prevention and control group and the Hygiene Services Committee also reported to the Infection Prevention and Control Committee on priorities, performance indicators and on progress of the infection prevention and control quality improvement plan. Minutes of meetings reviewed by inspectors showed that meetings followed a

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\* The Master also works as a Consultant Obstetrician/Gynaecologist in the hospital.

standardised agenda which included feedback and consideration of the following issues:

- surveillance data including caesarean section surgical site surveillance
- infection control risks and outbreak reports
- microbiology reports
- sepsis committee audit reports
- antimicrobial stewardship reports
- hand hygiene audit and education updates
- root cause analyses and learning
- staff influenza vaccine updates
- public health reports
- care bundle audit reports and surveillance
- central sterile supplies department report
- environment, facilities and hygiene inspection reports
- communication and customer feedback issues
- governance issues including quality improvement plans.

The Infection Prevention and Control Committee formally reported to the Quality and Safety Committee as did 11 other hospital committees. The Quality and Safety Committee was chaired by the Master and met monthly. Minutes of these meetings reviewed by inspectors showed that infection prevention and control was a standing agenda item. Membership comprised of representation from multiple specialities and senior managers across the hospital including infection prevention and control, quality and patient safety and risk management.

The Master presented a written report from the Quality and Safety Committee to the General Purpose Committee, one of the board sub-committees, which in turn reported to the Board of Governors.

### **The infection prevention and control service**

The infection prevention and control service at the hospital was approved and overseen by the Infection Prevention and Control Committee and delivered by a specialist multidisciplinary infection prevention and control team. The Infection Prevention and Control Team held weekly meetings and undertook daily ward rounds. Additionally, the team provided expert advice to hospital committees such as quality and safety, drugs and therapeutics, decontamination, antimicrobial stewardship, risk management, procurement of equipment committees and the Medical Board. The team also provided advice before and during refurbishment and building projects at the hospital.

The clinical microbiology service at the hospital was delivered by a consultant microbiologist who had a joint whole-time equivalent (WTE)<sup>†</sup> appointment with Temple Street Children's University Hospital with a 21 hour commitment to the Rotunda Hospital. During this inspection it was identified that a second consultant microbiologist had been appointed and was due to commence at the hospital in early 2018. This would mean an increase of 21 hours weekly for the microbiology service at the hospital. The lead Consultant Microbiologist should have sufficient dedicated time to lead the infection prevention and control programme in line with National Standards.

The team was led by the Consultant Microbiologist. The team included three midwifery and or nursing positions giving a total of 2.5 WTE which comprised 1.0 WTE Assistant Director of Midwifery and Nursing in Infection Prevention and Control, and 1.5 WTE Clinical Midwife Manager 2 positions. The team was supported by the Chief Medical Scientist and a surveillance scientist and 1.0 WTE antimicrobial pharmacist. The team did not have dedicated administrative support and this had been identified as a requirement in the infection prevention and control service plan for 2017.

Consultant Microbiologist advice was available to clinical staff on a 24-hour basis seven-days-a-week, in line with National Standards. The Microbiology Department in the hospital was accredited by the Irish National Accreditation Board.

An infection prevention and control plan was submitted by the team to the Infection Prevention and Control Committee at the start of the year and progress was discussed at each meeting. The following issues were highlighted in the 2016 infection control report as areas of focus in 2017:

- infection control in the neonatal intensive care unit
- antimicrobial use especially of restricted antimicrobials
- management of premature rupture of membranes
- antenatal screening for infectious diseases
- infection control practices around caesarean section surgery.

### **Monitoring and evaluation**

The Rotunda Hospital reported the following performance indicators in relation to the prevention and control of healthcare-associated infection in line with HSE national reporting requirements:

- hospital-acquired *Staphylococcus aureus* bloodstream infection

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<sup>†</sup>Whole-time equivalent (WTE): allows part-time workers' working hours to be standardised against those working full-time. For example, the standardised figure is 1.0, which refers to a full-time worker. 0.5 refers to an employee that works half full-time hours.

- hospital-acquired *Clostridium difficile* infection

Hospital management also monitored performance in respect of the following indicators:

- percentage compliance of hospital staff with the World Health Organisation 5 moments of hand hygiene
- mandatory hand hygiene training uptake by current healthcare staff who interact with patients in the rolling 24 month period.

The Infection Prevention and Control Team provided ongoing surveillance of key infection-related issues at the hospital. Infection control surveillance reports reviewed by inspectors showed that some data was benchmarked and compared with other local maternity hospitals and other data was presented in a meaningful way, clear and easy to interpret with gridlines showing the hospital results, expected limits, warning lines and action lines. Benchmarking of data is important to ensure comparability with local, national and international data.

Performance in relation to the following parameters were continuously monitored at the hospital by the team and was presented quarterly to the Infection Prevention and Control Committee and executive management team at the hospital:

- alert organisms<sup>‡</sup> and alert condition surveillance
- number of obstetric, neonatal and gynaecology positive blood cultures
- percentage of contaminated blood cultures
- Group B *streptococcus*<sup>§</sup> infection and resistance
- clusters or outbreaks of infection
- antimicrobial resistance patterns and antimicrobial usage
- caesarean section infection surveillance
- maternal sepsis
- data reported to the European Antimicrobial Resistant Surveillance Network (EARS-Net)<sup>\*\*</sup>

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<sup>‡</sup> Alert organisms are micro-organisms that pose a significant risk of transmission to non-infected patients or healthcare workers, alert conditions include physical symptoms such as skin rashes, vomiting, diarrhoea, respiratory illness that could be due to an infectious illness.

<sup>§</sup> Group B *streptococcus* is a gram-positive streptococcal bacteria normally found in the genital tract in about 25% of healthy pregnant women. In some circumstances the bacteria can cause a serious infection in mothers and or babies.

<sup>\*\*</sup> EARS-Net performs surveillance of antimicrobial susceptibility of bacteria causing infections in humans including; *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Acinetobacter* species, *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Enterococcus faecalis* and *Enterococcus faecium*.

- water and food sample results.

The hospital also submitted infection surveillance data to the Vermont Oxford Network<sup>††</sup> in respect of very low birth weight babies.

Infection control surveillance reports reviewed by inspectors showed that there had been an increase in the incidence of maternal bacteraemia in quarter two 2017. As part of the hospital's ongoing surveillance programme, the hospital investigated all cases of bloodstream infections. This increase had been predominantly associated with Group B *streptococcus* bacteraemia.

The Infection Prevention and Control Team report for 2016 showed that the team conducted audits across the hospital in relation to hand hygiene, environmental and patient equipment hygiene, decontamination and waste management.

The Rotunda Hospital participated in a national point prevalence survey of hospital-acquired infections and antimicrobial use in May 2017 which was part of a European-wide point prevalence study. This demonstrates a commitment by the hospital to proactively identify areas for improvement in the hospital.

Responsibility for environmental hygiene at the hospital was delegated to the Household Services Manager who in turn reported into the Hygiene Services Committee. Environmental and patient equipment hygiene standards were monitored at the hospital and audit results were presented at quarterly infection prevention and control committee meetings, hygiene committee meetings and executive management meetings. Independent management hygiene inspection audits and monthly quality walk rounds were undertaken by the Executive Management Team at the hospital. A quality improvement action plan was implemented if areas for improvement were identified.

Other parameters monitored at the hospital included care bundle implementation and findings in this regard will be presented in section 2.5.1. The hospital also reported on Nursing and Midwifery HSE Quality Care Metrics on a monthly basis.

Compliments, comments and complaints received from service users in relation to infection prevention and control were discussed at monthly quality and safety meetings at the hospital.

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<sup>††</sup> The Vermont Oxford Network is a US based nonprofit voluntary collaboration of health care professionals with a network that comprises nearly 1,000 neonatal intensive care units around the world who are committed to improving the effectiveness and efficiency of medical care for newborn infants and their families through a coordinated program of research, education, and quality-improvement projects.

## 2.2 Risk management

### Line of enquiry 1.2

Risks in relation to the prevention and control of infection are identified and managed.

Risks in relation to the prevention and control of infection should be identified and effectively mitigated or managed. Any gaps or serious risks identified in the service's ability to prevent and control healthcare-associated infections must be addressed in a timely manner.

The Rotunda Hospital had systems in place to identify and manage risk in relation to the prevention and control of healthcare-associated infections. An electronic corporate risk register<sup>††</sup> was maintained by hospital management which included infection prevention and control risks and included some of the following:

- aging hospital infrastructure
- insufficient hospital capacity
- staffing resources
- infection outbreaks in the neonatal intensive care unit
- sepsis
- wound dehiscence<sup>§§</sup> post caesarean section operations
- false positive detection of legionella in water samples.

To address significant risks identified, a number of control measures to mitigate or manage risks had been implemented. The hospital was endeavouring to improve the hospital infrastructure within the constraints of an historic and protected building and findings in this regard will be presented in section 2.8 in this report.

The hospital reported that a number of full-time midwifery and or nursing positions had been filled in 2016 and 2017 and recruitment campaigns were ongoing. Notwithstanding this it was reported that staff turnover remains a challenge and the hospital were actively managing recruitment plans for additional midwifery and nursing staff.

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<sup>††</sup> A risk register is a database of assessed risks that face any organisation at any one time. Always changing to reflect the dynamic nature of risks and the organisation's management of them, its purpose is to help hospital managers prioritise available resources to minimise risk and target improvements to best effect. The risk register provides management with a high level overview of the hospital's risk status at a particular point in time and becomes an active tool for the monitoring of actions to be taken to mitigate risk.

<sup>§§</sup> Wound dehiscence is one of the most common complications of surgical wounds, involving the breaking open of the surgical incision along the suture line.

A surgical site infection surveillance programme was in place and the hospital had introduced a surgical site infection prevention care bundle to address the risk of wound dehiscence post caesarean section operations. If a woman was readmitted with a surgical site infection, this was reported as a clinical incident. Hospital consultants had nominated a representative consultant to lead on the sepsis programme at the hospital.

Clinical incidents were reported in respect of infection prevention and control and escalated and evaluated accordingly and uploaded to the National Incident Management System (NIMS). Clinical incidents were reviewed weekly by the Clinical Risk Manager and weekly updates were provided to the Executive Management Team. Hospital management reported that hospital-acquired infection and infection outbreaks were recorded as clinical incidents at the hospital. Clinical incidents were discussed at monthly quality and safety committee meetings and quarterly infection prevention and control committee meetings. The corporate risk register is reviewed and updated monthly by the hospital's Executive Risk Group, which reports on a quarterly basis to the Risk Committee, a sub-committee of the Board of Governors. The Master reported on clinical risk management with updates and feedback on clinical risk, serious reportable events and incident review at monthly board of governors meetings.

Significant risks were further escalated by the Master to the RCSI hospital group. The Director of Midwifery was assigned as the Chief Risk Officer at the hospital.

## 2.3 Policies, procedures and guidelines

### Line of enquiry 2

The hospital has policies, procedures and guidelines in relation to the prevention and control of infection and hospital hygiene.

Inspectors found that the hospital had a suite of infection prevention and control policies in relation to standard precautions, transmission-based precautions and the prevention of invasive device-related infection. It was practice that hospital policies, procedures and guidelines in respect of infection prevention and control were approved by hospital management on behalf of the Infection Prevention and Control Committee.

Infection prevention and control policies, procedures and guidelines were made available to staff in electronic format on the hospital intranet. The hospital had an electronic document management system to facilitate document version control and access by staff across the hospital. Inspectors found that these documents were accessible to staff in clinical areas inspected.

Current HSE policy states that hospital policies, procedures and guidelines should be reviewed every three years.<sup>3</sup> Inspectors found that the majority of policies reviewed in relation to infection prevention and control were up-to-date. Local policies for intravascular device care in the Neonatal Unit were overdue for review at the time of inspection.

Inspectors were informed that a policy in relation to the prevention of aspergillosis was currently in development. Hospital staff had recently reviewed the local policy for the decontamination of medical equipment.



## 2.4 Staff training and education

### Line of enquiry 3

Hospital personnel are trained in relation to the prevention and control of healthcare-associated infections.

Hand hygiene training in the hospital was mandatory for staff at induction and every two years thereafter in line with national hygiene guidelines. At the time of this inspection, 90% of all staff at the hospital were up-to-date with hand hygiene training. Data breakdown per discipline showed that 89% of midwifery and nursing staff and 92% of medical staff including consultants had received hand hygiene training in the last two years.

Infection prevention and control education was also mandatory for relevant hospital staff at induction and two yearly thereafter. Mandatory training was provided on a monthly basis at the hospital and included standard and transmission-based precautions and hand hygiene, blood borne viruses, multidrug-resistant organisms, decontamination, wound care and aseptic non-touch technique. It was reported that the hospital had aligned infection prevention and control education to the national framework for such knowledge and skills.<sup>4</sup> Education and training sessions were also provided to medical staff at medical meetings at the hospital.

Documentation reviewed by inspectors showed that 91% of midwifery and nursing staff in the postnatal ward and 89% of midwifery and nursing staff in the Neonatal Unit had completed infection prevention and control training in the previous two years.

A two day competency-based training programme for midwifery and nursing staff was provided in relation to intravenous cannulation at the hospital which included education in relation to aseptic non-touch techniques. A number of staff had completed this training in the postnatal ward inspected. Additionally a number of staff across the hospital had completed an infection prevention and control module at the Royal College of Surgeons Ireland and had become link infection prevention and control midwives and nurses for clinical areas.

Training programmes were also provided at induction for newly appointed medical staff with responsibility for insertion of intravascular catheters and support was also provided to staff by advanced nurse practitioners in the Neonatal Unit. Updates in respect of infection prevention and control were provided to staff in clinical areas in the form of information leaflets.

All staff at the hospital had access to advice from the Infection Prevention and Control Team and the Antimicrobial Pharmacist. A mobile phone application in relation to antimicrobial prescribing guidelines was also available.

Documentation reviewed by inspectors showed that hospital supervisors in the household services department had undertaken a cleaning training programme and were certified as instructors in relation to cleaning. Staff training was also provided to household staff on an annual basis in relation to cleaning detergents, waste management, cleaning equipment and hand hygiene.

## 2.5 Implementation of evidence-based and best practice

### Line of enquiry 4.1

The hospital has implemented evidence-based best practice to prevent intravascular device-related infection and urinary catheter-associated infection, ventilator-associated pneumonia and surgical site infection.

#### 2.5.1 Prevention of invasive device-related infection

Care bundles<sup>\*\*\*</sup> to reduce the risk of different types of infection have been introduced across many health services over the past number of years, and there have been a number of guidelines published in recent years recommending their introduction across the Irish health system.<sup>5,6,7</sup>

Inspectors were informed that care bundles for urinary catheter care, peripheral vascular catheter care and central venous catheter care had been implemented throughout the hospital in line with national guidelines.

Monitoring compliance with care bundles is an important process measure for evaluation of catheter-related blood stream infection preventative programmes. Inspectors were informed that audit of care bundle compliance was performed monthly by either ward managers or infection prevention and control link midwives and nurses. Results were fed back to ward managers and staff in clinical areas.

Care bundle compliance audits from January 2017 to December 2017 showed that the hospital had achieved an average overall compliance score of 97% and 95% for urinary catheter and peripheral vascular care bundles compliance respectively.

The implementation of care bundles to prevent invasive device-related infection was reviewed in the clinical areas inspected.

#### Neonatal Unit

There was good clinical support for staff in the Neonatal Unit in relation to the insertion and management of invasive devices. New and less experienced staff were supported by neonatology medical and nursing staff and also by an advanced nurse practitioner. Staff were supervised and supported during invasive device insertion as required. A clinical skills facilitator in the unit also provided support and training for staff.

Peripheral vascular catheters and central venous catheter care bundles were in place in the Neonatal Unit. Compliance with central venous catheter care bundle

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\*\*\* A bundle is a small, straightforward set of evidence-based practices that, when performed collectively and reliably, have been proven to improve patient outcomes.

implementation was audited and averaged 100% from December 2016 to June 2017. The unit achieved 95% compliance with peripheral vascular catheter care bundle implementation from January to December 2017.

### **Postnatal ward**

The postnatal ward inspected had achieved an average compliance of 100% with urinary catheter care bundle implementation from January to December 2017. Opportunities for improvement were identified in relation to implementation of peripheral vascular catheter care bundles for the same period as the average compliance score was 77%. Inspectors were informed that action plans were generated in response to less than desirable care bundle compliance results. Evidence indicates that full compliance with all essential care bundle components improve patient outcomes.

### **2.5.2 Surveillance of invasive device-related and surgical site infection**

The surveillance<sup>+++</sup> of healthcare-associated infection<sup>+++</sup> is one of the core components of an effective infection prevention and control programme.<sup>8,9,10</sup> National guidelines recommend healthcare-associated infection surveillance in relation to surgical site infection, central venous access device-related infection, urinary catheter-associated urinary tract infection and ventilator-associated pneumonia.<sup>11,12,13</sup> Other health systems have advanced the surveillance of healthcare-associated infection to the benefit of both patients and health service providers by demonstrating reductions in these type of infections.<sup>14,15</sup>

Measures to prevent ventilator-associated pneumonia implemented in the neonatal intensive care unit included weaning from the ventilator as soon as possible, weekly dismantling and cleaning of incubators for babies who were in-patients and use of closed suction and humidification systems. Surveillance of urinary catheter-associated urinary tract infection was not routinely performed; it was reported that urinary catheter usage was very low at the hospital.

Surgical site infection surveillance represents good practice and demonstrates a commitment to monitoring the quality of patient care and is an important patient safety and quality assurance initiative. Surgical site infection surveillance following caesarean section was undertaken at the hospital and women were followed for signs of infection for 30 days after surgery. The hospital produced quarterly surgical site surveillance reports and presented findings at infection prevention and control committee meetings.

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<sup>+++</sup> Surveillance is defined as the ongoing, systematic collection, analysis, interpretation and evaluation of health data closely integrated with the timely dissemination of these data to those who need it.

An infection control surveillance report for quarter four 2016 showed an increase in the incidence of surgical site infections at the hospital. The hospital had identified local relevant and possibly contributory factors which is representative of good practice and facilitates a timely response. A surgical site infection care bundle for elective surgery had been implemented at the hospital. Documentation reviewed by inspectors showed that a care bundle for emergency caesarean section surgery was being devised by the Sepsis Team at the hospital. Surgical site infection surveillance figures had improved in 2017.

Performance of surgical site infection surveillance reflects good practice and facilitates the identification of opportunities for improvement.

Inspectors were informed that a policy in relation to surgical site infection was currently in development which is in line with best practice guidelines.<sup>16,17,18,19</sup> The hospital had guidelines for surgical antimicrobial prophylaxis.

## 2.6 Systems to prevent and manage healthcare-associated infections and multidrug-resistant organisms

### Line of enquiry 4.2

The hospital has systems in place to detect, prevent, and respond to healthcare-associated infections and multidrug-resistant organisms in line with national guidelines.

#### 2.6.1 Preventing the spread of antimicrobial-resistant organisms

Healthcare environments should be planned, designed, developed and maintained to facilitate effective cleaning and compliance with infection prevention and control best practice.<sup>1</sup> It is important that the physical healthcare infrastructure minimises the spread of healthcare-associated infections, including multidrug-resistant organisms.<sup>20</sup>

Inspectors looked at implementation of aspects of transmission-based precautions to assess the prevention and control of transmission of antimicrobial-resistant bacteria in the clinical areas inspected.

#### Hospital isolation facilities

Patients with suspected or confirmed communicable disease including healthcare-associated infection and multidrug-resistant organisms should be placed in a suitable isolation room, single room or cohort<sup>\*\*\*</sup> area, in line with national guidelines.<sup>21,22</sup>

Hospital managers told inspectors that there were 198 in-patient beds at the Rotunda Hospital of which there were 24 single rooms and 23 of these had en-suite facilities. On the day of inspection there were 250 women and babies at the hospital and five babies required transmission-based precautions in the Neonatal Unit.

The Infection Prevention and Control Team advised staff in relation to screening and isolation requirements for in-patients colonised<sup>§§§</sup> or infected with a transmissible organism.

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<sup>\*\*\*</sup> A cohort area is a bay and or a ward in which a group of patients (cohort) with the same infection are placed together. 'Cohorting' of patients classically means the separation of those patients and their nursing staff from other patients because single room isolation facilities are not available. It is generally used as a measure of last resort in situations where single room capacity is greatly exceeded by the number of patients who are colonised with a particular alert organism, in an effort to prevent cross transmission from this patient cohort to the wider hospital patient population.

<sup>§§§</sup>Colonisation is the presence of bacteria on a body surface (like on the skin, mouth, intestines or airway) without causing disease in the person. Infection is the invasion of a person's bodily tissues by disease-causing organisms.

## **Microbiological screening of patients**

Women were assessed during antenatal visits and on admission to determine if they had symptoms of infection or if they had a history of being colonised with specific types of bacteria. The hospital had recently introduced the new electronic national 'Maternal & Newborn Clinical Management System' (MN-CMS)<sup>\*\*\*\*</sup> which included a section in relation to risks and past medical history.

An infection prevention and control alert system was available on existing hospital information systems which identified women and babies previously colonised or infected with a transmissible infection however this alert was not automatically linked to the new MN-CMS electronic health record. This should be addressed going forward. It was reported that screening of women and babies for colonisation or infection with multidrug-resistant organisms at the hospital was performed in line with national guidelines.

## **The Neonatal Unit**

The unit had 39 approved cots with seven cots designated for neonatal intensive care, 12 for high dependency care and 20 for special care. The unit was broadly subdivided into three areas which included the intensive care area in which there were eight cots in an open plan area and an adjoining separate room which could accommodate two cots. The high dependency area comprised an open plan room with 13 cots, and a separate room which could accommodate up to three cots. Special care beds were located in one open plan five cot room and also in an area called 'the wing' which had one room with three cots and a further three smaller rooms which could accommodate one or two cots per room. Each of these rooms also included a pull out bed if a parent needed to stay overnight. One of these rooms was closed at the time of inspection as renovation works were in progress. There were 27 babies in the Neonatal Unit on the day of inspection. Inspectors were informed that often up to 16 babies would be accommodated in the high dependency area due to increased specialist care demands.

Inspectors were informed that there was an outbreak of respiratory infection in the Neonatal Unit on the day of inspection. Babies with symptoms of infection and babies who might have been exposed to this infection were cohorted together in a five cot room. The door of this room was kept open and staff explained that this was necessary from a patient safety perspective as there was one nurse designated to care for these babies. Relief for breaks was provided by staff who were not directly assigned patient care in order to reduce the risk of spreading infection to other babies in the unit.

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<sup>\*\*\*\*</sup> The MN-CMS Project is the design and implementation of an electronic health record for all women and babies in maternity services in Ireland.

During this inspection a baby in the intensive care area required isolation precautions but cot spacing here was inadequate making it difficult on a practical level to implement enhanced infection control precautions.

Inspectors observed that the design of the Neonatal Unit was outdated and did not meet desirable modern standards or facilitate implementation of effective infection prevention and control measures.<sup>23</sup> The unit opened in 2003 and since then demand for this specialist care has increased significantly as has the amount of complex medical equipment required to support the needs of babies cared for in the unit.

Staff in the Neonatal Unit worked within a very challenging infrastructure. Space around cots in open plan areas was very limited and was not in line with current recommendations which poses a risk of spreading infection in the unit. Storage space at individual cot spaces was very limited and difficult to access as in some areas this was located at a low level behind cots. Overall there was very limited space for staff to circulate or for visiting parents and this was particularly noticeable during the inspection while clinical rounds were in progress.

Ancillary rooms for the storage of supplies and medications in the unit were also limited. There was no designated medication storage room for the intensive care and high dependency areas. Rooms in which patient equipment and clean supplies were stored were not conveniently located to facilitate ease of access for staff. Because of insufficient storage facilities most areas of the unit were cluttered with either supplies or equipment. This does not facilitate cleaning and poses a risk of contaminating clean equipment and supplies.

Other design and configuration features of the unit were less than ideal from an infection prevention and control perspective. These included exposed pipework and multiple horizontal ledges and surfaces throughout the unit which do not facilitate effective cleaning. A breast milk expressing room designated for use by the mothers of babies in the unit was located between the intensive care and high dependency patient care areas. This meant that mothers who needed to use this room had to walk through one of these clinical areas to access the room which was less than ideal.

Space in the reception area for visitors and staff entering the unit was limited and this area also contained diagnostic equipment including blood analysers. There was insufficient storage space for the volume of medical equipment stored in the unit. This meant that patient equipment was stored along the narrow corridors in the unit rather than in designated store rooms as recommended. This was not an ideal environment in which to store patient equipment.

Overall the environment and patient equipment in the unit appeared visibly clean with few exceptions but due to the level of activity and lack of space in the patient



care areas it was difficult to access all areas during the inspection. Some opportunities for improvement were identified in relation to general maintenance of surfaces and finishes.

There were good systems in place to identify equipment that needed to be cleaned. Designated staff had been specifically trained to dismantle and clean the complex patient equipment used in the unit. A record was maintained of items of equipment that had been cleaned. Staff had clearly allocated responsibilities in relation to cleaning. However, the layout and limited size of the designated room for equipment cleaning did not facilitate the separation of clean and dirty activities and potentially increased the risk of contaminating clean equipment and supplies.

Hygiene audit results were performed monthly by midwifery and or nursing staff and documentation reviewed by inspectors showed that the unit achieved an average performance score of 97% from June to December 2017. Twice weekly household staff cleaning audits showed that the unit achieved an average performance score of over 90% for the past three months.

### **Postnatal ward**

The design of the postnatal ward inspected also did not facilitate effective infection prevention and control because of lack of isolation facilities, large multi-occupancy rooms and a nightingale-style<sup>+++</sup> room, limited space between beds, and insufficient ancillary rooms to facilitate the storage and management of equipment and supplies. The infrastructure was outdated and was not in line with recommended specifications and standards of a modern patient care facility.<sup>24</sup>

The postnatal ward could accommodate 24 in-patient beds and comprised one two-bedded room, a six-bedded room, a seven-bedded room and one nine-bedded nightingale-style room. The nine-bedded room opened into the two-bedded room which meant that to gain access staff, women and visitors had to walk through the nine-bedded room as there was no separate access which was less than ideal from an infection prevention and control perspective.

Inspectors observed limited spacing between beds in the multi-occupancy rooms and in particular in the nine-bedded room which with cots and armchairs, hindered access behind beds and around lockers therefore impeding effective cleaning. The hospital should ensure that a safe and comfortable environment is provided for patients and staff.

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<sup>+++</sup> A nightingale-style room consists of one long ward with a large number of beds arranged along the sides, without subdivision of the room into bays. From an infection prevention and control perspective, the higher number of patients accommodated in nightingale wards increases the risk of infection transmission, especially if beds are spaced too close together.

Inspectors observed that the number of toilet, shower and sink facilities were not appropriate for the needs of patients and staff in line with best practice recommendations.<sup>25,26</sup> None of the rooms had en-suite toilet and shower facilities and there was only one clinical hand wash sink for staff in each room including the nine-bedded room. In total there were only four toilets, two showers and one bath and shower facility to accommodate the needs of women on a postnatal ward.

As there were no single rooms to accommodate patients requiring isolation on the ward, inspectors were informed that patients who required isolation would be accommodated in an adjacent postnatal ward, located on the same corridor. This ward had two single rooms with en-suite facilities and an anteroom for the management of patients requiring isolation. On the day of inspection none of the patients on the ward inspected required transmission-based precautions.

Space in the 'dirty' utility room<sup>\*\*\*\*</sup> was very limited and there was no natural or mechanical ventilation in the room which is not in line with best practice guidance.<sup>27</sup> There were insufficient ancillary rooms and storage facilities on the ward. There was no dedicated space or room where staff could clean and store patient equipment. Patient equipment such as intravenous pumps were stored inappropriately on an open shelf in the two-bedded patient room, and a patient commode was stored in a patient toilet shower facility.

Laundry trolleys containing used linen were stored on a main ward corridor as was a trolley with clean linen which was inappropriate as it should be protected from inadvertent contamination. Healthcare risk waste and non-risk waste bags were stored in separate collection storage units with restricted access also on a main ward corridor which is not in line with national guidelines.<sup>28</sup>

Overall the patient environment inspected was generally clean with few exceptions however as access to many patient care areas was restricted due to limited space, on a practical level this was difficult to assess. A number of disposable curtains at occupied bed spaces in the nine-bedded room were stained and should have been replaced. In light of space restrictions between patient bed spaces, disposable curtains should be managed in a way that minimises the spread of healthcare-associated infections in line with best practice guidance.<sup>29,30</sup> Inspectors were informed that the hospital had recently experienced delays in relation to receipt of such supplies and had addressed this issue by the close of inspection.

However, opportunities for improvement in relation to patient equipment hygiene was observed. Red staining was observed on a patient commode stored in a patient

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\*\*\*\* A room equipped for the disposal of body fluids and the decontamination of reusable equipment such as bedpans, urinals, commodes and body fluid measuring jugs. Waste, used linen and contaminated instruments may also be temporarily stored in this room prior to collection for disposal, laundering or decontamination.

toilet facility. A number of items of patient equipment were either stained or dusty such as a portable blood pressure monitor, blood-pressure cuffs, two intravenous infusion pumps and a tympanic thermometer.

A maternity ward is deemed a high risk area and therefore should have the necessary resources required to ensure that patient equipment is cleaned in line with minimum cleaning frequencies for such areas.<sup>29, 30</sup> Inspectors reviewed medical equipment cleaning schedules and noted that cleaning frequencies were not fully aligned with recommended national minimum cleaning frequencies for higher risk areas. Additionally, it was noted that some checklists were not consistently completed in line with the hospital's own cleaning schedules. Staff responsible for cleaning patient equipment should have the right level of training, appropriate equipment, allocated time, know what needs to be cleaned and how often and be properly supervised.

The hospital had attributed recent deficiencies in relation to patient equipment hygiene to the recent implementation of the new electronic MN-CMS electronic health record at the hospital as additional resources and training was required. Notwithstanding this the hospital should have put contingency plans in place to mitigate the effects of temporary unavailability of staff for the performance of cleaning tasks during this time.<sup>31</sup>

Inspectors observed that there was good local ownership of environmental cleaning and viewed daily check lists and cleaning schedules on the ward. Hygiene audit results for January to March 2017 also showed over 90% compliance with desirable standards for the patient care environment and equipment. Inspectors observed that a quality improvement plan in relation to audit findings had been produced and had identified areas requiring review and actions taken to address these issues. Ongoing hygiene audits undertaken from June to November 2017 in the postnatal ward showed an overall compliance of 97% with environmental and patient equipment hygiene.

### **2.6.2 Safe injection practice**

Inspectors reviewed elements of safe injection practice and implementation of aspects of standard precautions in the clinical areas inspected.

#### **Neonatal Unit**

Staff in the Neonatal Unit who spoke with inspectors were able to describe recommended practice in relation to giving injections safely. Surfaces near-patient testing equipment were clean, multi-dose vials were not used in the unit and medications for injection were prepared immediately prior to use in line with best practice guidelines.

Some opportunities for improvement were identified in relation to safe injection practice and these largely related to poor design and limited space in the intensive care area of the unit. There was insufficient floor space to facilitate the disposal of used equipment into an appropriate waste container at the point of care as recommended. Inspectors observed that a tray containing supplies that had been used to administer intravenous medication and fluid to one baby was moved to a worktop on the opposite side of the unit. The tray was placed in this location so that another staff member could remove it from the intensive care area to have it cleared and cleaned. This practice highlights the severe space restrictions within the unit which need to be addressed.

There was no dedicated medication storage room near the intensive care and high dependency areas in the unit, there was a designated medication trolley which was wheeled to the patient cot side when staff needed to administer medication for injection. Similarly a blood sampling trolley with supplies for multiple procedures was brought to the patient when staff needed to obtain a blood sample. Ideally only supplies for one procedure should be brought to the point of care.

Access to the blood analysers was through the busy neonatal unit reception area where these machines were located. This was less than ideal and the location of these machines should be reviewed. The practice of taking capillary tubes containing blood samples to these machines should be reviewed to ensure that the risk of blood spillage is minimised.

### **Postnatal ward**

Staff who spoke with inspectors were able to describe recommended practice in relation to giving injections safely. Multi-dose vials of insulin medication and injection pens contained labels to indicate single patient use as recommended. The hospital had a policy in relation to aseptic non-touch technique and safe injection practices.

Space in the clinical room was limited and there was no designated surface for intravenous medication preparation. The limited size of the room did not facilitate the separation of clean and dirty activities. Procedure trays that had been used at the point of care were cleaned on the medication preparation area which posed a risk of contamination of this area. Multiple red stains were visible on one of the procedure trays inspected. At the time of inspection a small stock of sterile supplies was observed on some trays. Procedure trays should be emptied of supplies after each use to facilitate cleaning.

A medication fridge in the clinical room did not appear to have been cleaned for some time. Responsibility for this task should be assigned to staff members who have designated time allocated for cleaning.

### **2.6.3 Prevention of invasive aspergillosis during construction work**

There is potential risk to people with impaired immune systems of acquiring invasive aspergillosis<sup>§§§§</sup> during construction or renovation activities in hospitals, therefore specific controls need to be put in place to prevent such occurrences.

On the day of inspection, measures to reduce the risk of invasive aspergillosis during renovation and refurbishment works in an adjacent unit in the Neonatal Unit were reviewed. Inspectors were informed that the Infection Prevention and Control Team undertook a risk assessment prior to commencement of these works and provided advice in relation to control measures.

Documentation reviewed showed that method statements had been developed and control measures had been clearly identified. Measures to control dust emission from the construction area were in place.

The Infection Prevention and Control Team provided education for external contractors in relation to aspergillosis prevention and provided information leaflets for staff.

### **2.6.4 Other measures to prevent the transmission of infection**

#### **Hand hygiene**

The Rotunda hospital participated in national hand hygiene audits, the results of which are published twice a year. The hospital achieved 93.8% compliance rate in the national hand hygiene audit in June/July 2017 which is above the current required compliance target of 90% set by the HSE. The hospital had consistently achieved the required HSE compliance target which is commendable.

Inspectors were informed that local hand hygiene audits were performed monthly in high risk areas and bimonthly in other clinical areas either by infection prevention and control link midwives and or nurses or the infection prevention and control midwives. The most recent hand hygiene audit results for the postnatal ward inspected showed 97% compliance from October to December 2017.

Hand hygiene audit results for the Neonatal Unit showed that staff achieved compliance rates of 63% and 77% in two audits performed in March 2017. An infection prevention and control hand hygiene audit report reviewed by inspectors showed that an action plan had been put in place which included staff education and re-audit of practice. Follow-up audits in the unit achieved improved compliance of

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<sup>§§§§</sup> Healthcare-associated invasive aspergillosis is an infection that can be potentially life threatening in patients with impaired immune systems. It is caused by fungal spores that may be transmitted in dust created by excavation and building work.

84% and 90% in April and May 2017 respectively. The unit achieved an average hand hygiene compliance rate of 93% between October and December 2017.

Alcohol gel was available at the point of care in the clinical areas inspected in line with best practice guidelines. The design of the majority of clinical hand wash sinks in the Neonatal Unit were not compliant with the most recent technical guidelines for such sinks. A few sinks in the unit had been upgraded. Upgrade of sinks should be prioritised in high risk areas of the hospital.

### **Outbreak management**

Inspectors were told that detailed outbreak reports were produced and presented at the Infection Prevention and Control Committee meetings and to senior management at the hospital. The RCSI hospital group was informed of any outbreaks of infection at the hospital. The hospital infection prevention and control report for 2016 showed that there had been two outbreaks of infection in the neonatal intensive care unit in that year.

During this inspection the hospital management team reported to inspectors and documentation reviewed by inspectors showed that there had been an increase in the number of outbreaks of infection in the Neonatal Unit in 2017. Outbreaks that occurred in the Neonatal Unit related to antimicrobial resistant bacteria in addition to respiratory and other viral infections. On the day of inspection, an outbreak due to a respiratory viral infection had been declared in the Neonatal Unit.

A number of factors which likely contribute to outbreaks of infection in the Neonatal Unit were identified during this inspection. These included high activity levels, poor infrastructure, less than desirable staffing levels, insufficient spacing around cots, insufficient isolation facilities, poor ancillary facilities with insufficient space to separate clean and dirty activities and insufficient storage facilities which resulted in the inappropriate storage of equipment and supplies in the unit. Additionally these factors make the environment difficult to clean.

A need to improve the infrastructure of the Neonatal Unit was identified by hospital management following recent outbreaks of infection and a renovation and upgrade project had commenced at the hospital. As part of this project hospital management planned to reduce the number of cots in the high dependency area from 13 to 10 and there were plans to reconfigure the 10 cots in this area to improve spatial separation between cots.

Remedial works had been undertaken in relation to electrical power systems in the neonatal intensive care unit following a fire associated with an electrical fault in April 2017. Plans to undertake a more comprehensive refurbishment programme were underway which included creating a four cot room next to the Special Care Baby

Unit which will be fitted to Intensive Care Unit specifications so that upgrade works can commence in the Intensive Care Unit and babies can be temporarily accommodated here. Additionally as part of this project services and wiring in the neonatal intensive care unit were due to be upgraded.

It was identified to inspectors that nurse staffing resources in the Neonatal Unit were less than currently recommended and that the hospital was actively in the process of recruiting nurses for this speciality. A need for increased staffing resources for cleaning responsibilities in the Neonatal Unit had also been identified and a business case had been submitted to the HSE. On the background of increasing outbreaks of infection in the Neonatal Unit, this should be progressed as a matter of priority.

### **Prevention of water-borne infection**

National guidelines recommend that a legionella risk assessment is performed and reviewed on an annual basis or if significant changes to the water distribution system is detected and independently audited every two years.<sup>32</sup> A formal legionella site risk assessment had been performed at the hospital in July 2017.

The Head of Support Services at the Facilities Management Department provided oversight of the management of water services at the hospital who in turn reported to the Property Committee, one of four sub-committees of the Board of Governors.

The hospital had implemented a number of control measures in relation to legionella prevention such as routine flushing. A water treatment system had been installed at the hospital in 2015. Regular water sample testing for legionella bacteria was performed at the hospital and test results were overseen by the Consultant Microbiologist and the Infection Prevention and Control Committee at the hospital. Legionella water test results if positive were repeated; the hospital reported that recent results had been within normal parameters. The hospital should assure itself that any recommendations from the risk assessment are addressed promptly in line with national standards and infection prevention and control standards.

## 2.7 Quality improvement initiatives

Hospital management were asked to provide inspectors with information about any quality improvement initiatives that had been implemented in relation to the prevention and control of infection at the hospital. A number of initiatives aimed at optimising infection prevention and control were implemented at the hospital which included but were not limited to the following:

- The hospital reported that 60% of relevant staff had received the seasonal influenza vaccine during the 2016/2017 influenza season which well exceeded the 40% HSE national uptake target and uptake rates of many other hospitals that reported influenza uptake rates to the HSE.<sup>33</sup> Seasonal influenza vaccine is recommended for healthcare workers each autumn.<sup>34</sup> High uptake rates shows commitment by staff at the hospital to reduce the risk of influenza infection.
- Infection prevention and control updates and information in relation to the prevention and control of healthcare-associated infection revised National Standards was included in the autumn edition of a hospital newsletter for staff.
- The Infection Prevention and Control Team hosted a hand hygiene awareness campaign on the World Health Organisation hand hygiene day in May 2017. Documentation reviewed by inspectors showed that over 100 staff had attended these sessions.
- The hospital had implemented information technology software to facilitate audit of both hospital hygiene and clinical practice and trending and analysis of audit results.
- A systematic review was undertaken to establish the number of outbreaks of a specific multidrug-resistant gram negative bacteria in neonatal intensive care units to determine causes, mortality rates, proportions of infants colonised and infected and the interventions that terminated the outbreaks.<sup>35</sup> Staff from the Department of Microbiology and Department of Midwifery at the Rotunda Hospital participated in this review and had an article published in an international medical journal. The systematic review concluded that understaffing was a major risk factor and poor infection-control procedures were frequently implicated as contributing to the spread of infection.
- Hospital staff also participated in a retrospective review of the impact of a rapid molecular test for positive blood cultures of neonatal intensive care patients. The research article was recently published in an Irish medical journal.<sup>36</sup>



## **2.8 Progress since the previous HIQA inspection**

HIQA reviewed the quality improvement plan<sup>37</sup> developed by the hospital following the 2016 HIQA infection prevention and control inspection.

Documentation reviewed by inspectors showed that the design brief for a proposed new maternity hospital on the Connolly Hospital campus in Blanchardstown is now complete. In the interim of this development the hospital was endeavouring to improve current facilities and physical infrastructure at the hospital.

The design, planning and tendering process for a new three-storey modular build had commenced in order to address the infrastructure and ventilation facilities in the Delivery Suite Operating Theatre. It was expected that these works would begin early in 2018. A number of shower and toilet facilities in postnatal wards at the hospital had been refurbished and renovated in 2016.

As identified previously in this report renovation works had commenced in a vacated part of a fetal assessment unit adjacent to the Neonatal Unit in order to facilitate expansion of the neonatal intensive care unit and improve cot-spacing. In addition, refurbishment works including essential maintenance and rewiring in the main neonatal intensive care unit was expected to commence in 2018 on a phased rolling programme of closures once the tendering process had been completed.

The hospital had recently introduced the new electronic national 'Maternal & Newborn Clinical Management System' project to facilitate the transition to electronic health record. In addition, rapid testing technology had been introduced for early detection of certain infections and improved software had been installed to better characterise antimicrobial resistance.

### **3. Conclusion**

Effective leadership, governance and management arrangements were evident around the prevention and control of healthcare-associated infection at the Rotunda Hospital. The hospital management team were clearly focused on monitoring structures, processes and outcomes and implementing evidence-based practice to inform any improvements in relation to the prevention and control of healthcare-associated infection at the hospital.

The hospital had systems in place to identify and manage risk relating to infection prevention and control however, the limited physical infrastructure and related planning and development restrictions remain a challenge for hospital management. These challenges had been identified in previous HIQA inspections.

Overall the patient environment inspected was generally clean with few exceptions and there was good ownership in relation to cleaning in the areas inspected. However, opportunities for improvement were identified in relation to the management and storage of equipment in both areas inspected. In addition cleaning frequencies in relation to patient equipment in one of the areas inspected should be revised and improved. Older and poorly designed hospital infrastructure makes cleaning more difficult, this needs to be taken into consideration when allocating cleaning resources.

The infrastructure of the Neonatal Unit and post-natal ward inspected was outdated and did not meet desirable modern standards or facilitate implementation of effective infection prevention and control measures. Additionally, an inherent risk in relation to the increasing number of outbreaks in the Neonatal Unit was of concern. A number of factors which likely contributed to these outbreaks of infection were identified on the day of inspection. The hospital was endeavouring to address these contributing factors by implementing interim refurbishment measures and ongoing recruitment of staff.

Inspectors found that the hospital had a suite of up-to-date infection prevention and control policies to support staff to implement best practice in relation to infection prevention and control. The hospital had consistently achieved the required HSE hand hygiene compliance target which is commendable. Care bundles had been implemented and the hospital had an active audit and feedback programme in place and should continue to drive full implementation of all essential care bundle components.

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**5. Appendix 1: Lines of enquiry for the monitoring programme undertaken against the *National Standards for the prevention and control of healthcare-associated infections in acute healthcare services***

Number	Line of enquiry	Relevant National Standard
1.1	The hospital has formalised governance arrangements with clear lines of accountability and responsibility around the prevention and control of healthcare-associated infections.	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 5.2, 5.3, 5.4, 6.1, 7.1
1.2	Risks in relation to the prevention and control of infection are identified and managed.	2.1, 2.3, 2.5, 3.1, 3.6, 3.7, 3.8
2	The hospital has policies, procedures and guidelines in relation to the prevention and control of infection and hospital hygiene.	2.1, 2.5, 3.1, 3.6, 3.8, 5.4, 7.2
3	Hospital personnel are trained and in relation to the prevention and control of healthcare-associated infection	2.1, 2.8, 3.1, 3.2, 3.3, 3.6, 6.1, 6.2
4.1	The hospital has implemented evidence-based best practice to prevent intravascular device-related infection and urinary catheter-associated infection, ventilator-associated pneumonia and surgical site infection.	1.1, 2.1, 2.3, 3.5
4.2	The hospital has systems in place to detect, prevent, and respond to healthcare-associated infections and multidrug-resistant organisms in line with national guidelines.	2.1, 2.3, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.8,





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