Report of the unannounced inspection at the Royal Victoria Eye and Ear 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: 14 March 2018
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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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 ........................................................................ 30
1.0 Introduction

HIQA monitors the implementation of the National Standards for the prevention and control of healthcare-associated infections in acute healthcare services\(^1\) 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.

In October 2017, the Minister for Health activated a Public Health Emergency Plan* and convened a National Public Health Emergency Team as a public health response to the increase of Carbapenemase Producing Enterobacteriaceae (CPE)† in Ireland. In light of the ongoing national public health emergency the focus of inspections in 2018 will be on systems to detect, prevent and respond to healthcare-associated infections and multidrug-resistant organisms in line with national guidelines.

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* which was published in May 2017 and is available on HIQA’s website: 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 due course.

**Information about this inspection**

This inspection report was completed following an unannounced inspection carried out at the Royal Victoria Eye and Ear Hospital, Dublin by Authorised Persons from HIQA; Noreen Flannelly-Kinsella and Kirsten O’ Brien. The inspection was carried out on 14 March 2018 between 09:45hrs and 16:00hrs.

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

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* A National Public Health Emergency Plan was activated on 25 October 2017 by the Minister for Health in response to the increase and spread of Carbapenemase Producing Enterobacteriaceae (CPE) in Ireland. As a result a National Public Health Emergency Team was convened and they have been meeting on a weekly basis since 02 November 2017. Please refer to the Department of Health webpage for further details: http://health.gov.ie/national-patient-safety-office/patient-safety-surveillance/antimicrobial-resistance-amr-2/public-health-emergency-plan-to-tackle-cpe/nphet-press-releases-minutes-of-meetings/

† Carbapenemase Producing Enterobacteriaceae (CPE), are Gram-negative bacteria that have acquired resistance to nearly all of the antibiotics that would have historically worked against them. They are therefore much more difficult to treat.
environment in one clinical area at the hospital. The central location for reprocessing reusable textiles was also visited during this inspection.

The inspection team used designed monitoring tools during this inspection and focused specifically on aspects of the prevention and control of transmission of antimicrobial-resistant bacteria and healthcare-associated infections.

HIQA would like to acknowledge the cooperation of the hospital management team and all staff who facilitated and contributed to this unannounced inspection.
2.0 Findings at the Royal Victoria Eye and Ear Hospital

The following sections 2.1 to 2.6 present the general findings of this unannounced inspection which are aligned to monitoring lines of enquiry.

2.1 Governance

**Line of enquiry**

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 Royal Victoria Eye and Ear Hospital is a voluntary public specialist hospital and a national tertiary referral centre. The hospital is a member of the Ireland East Hospital Group. The Chief Executive Officer (CEO) at the hospital reported to the CEO of the Ireland East Hospital Group at monthly hospital group performance meetings.

Inspectors found that that there were clear lines of accountability and responsibility at the hospital in relation to governance and management arrangements for the prevention and control of healthcare-associated infection. The CEO at the Royal Victoria Eye and Ear Hospital held overall accountability and responsibility for the prevention and control of healthcare-associated infection at the hospital.

The infection prevention and control service was delivered by a specialist infection prevention and control team who reported to the Infection Prevention and Control Committee. This committee in turn reported to the Quality and Safety Executive Committee who in turn reported into the Hospital Management Group. The hospital’s CEO, as chair of the Hospital Management Group, in turn was responsible for upward reporting to the hospital’s Hospital Council.

**The Infection Prevention and Control Team**

The infection prevention and control programme at the hospital was delivered by a specialist multi-disciplinary infection prevention and control team in line with National Standards. The aim of the programme was to identify and reduce the risk of acquiring and transmitting infections among patients, staff, and visitors.
The Infection Prevention and Control Team was led by a consultant microbiologist who was based at the National Maternity Hospital, Holles Street and who attended the hospital in person for 10 hours (0.3 whole time equivalent\(^6\) (WTE)) each week. It was reported to inspectors that the Consultant Microbiologist attended infection prevention and control team and committee meetings and antimicrobial stewardship ward rounds at the Royal Victoria Eye and Ear Hospital.

Microbiological laboratory services was provided by the National Maternity Hospital, Holles Street and clinical microbiology expert advice was provided by consultant microbiologists on a rotational basis. Clinical microbiology advice was available to clinical staff at the Royal Victoria Eye and Ear Hospital on a 24-hour basis seven-days-a-week in line with National Standards. The microbiological laboratory at the National Maternity Hospital, Holles Street was accredited by the Irish National Accreditation Board in line with National Standards.

The Infection Prevention and Control Team also included two 0.5 WTE infection prevention and control clinical nurse specialists giving a total of 1.0 WTE nursing position at the hospital. In the absence of a dedicated antimicrobial stewardship pharmacist, the Pharmacist’s at the hospital contributed to the delivery of the hospital’s antimicrobial stewardship programme. A surveillance scientist based at the National Maternity Hospital, Holles Street provided infection prevention and control surveillance data for the hospital.

The Infection Prevention and Control Clinical Nurse Specialist undertook daily ward rounds and the team met weekly to discuss all matters relating to infection prevention and control. The team had representation on a number of hospital committees such as the Drugs, Therapeutic and Antimicrobial Stewardship Committee, Quality and Safety Executive Committee, Hygiene and Decontamination Committee’s, and the Health and Safety and Facilities Committee’s. The team also provided advice before and during refurbishment and building projects at the hospital.

**The Infection Prevention and Control Committee**

The Infection Prevention and Control Committee at the hospital co-ordinated, directed, supported and provided oversight of the implementation of the infection prevention and control programme. The committee also reviewed and approved the annual infection prevention and control programme at the hospital.

The committee was chaired by the hospital’s CEO and membership included a consultant microbiologist and multi-disciplinary and executive management team.

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\(^6\) 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.
representation. Membership also included a non-consultant hospital doctor however in light of the committee’s objectives, a more senior hospital medical representative should be considered going forward.

The committee had defined terms of reference, and met quarterly and documentation reviewed showed that meetings followed a standardised agenda which included feedback and consideration of the infection prevention and control programme at the hospital including surveillance reports. Minutes of meetings reviewed by inspectors showed that there was regular attendance by all members at meetings.

The Infection Prevention and Control Committee, and a number of other committees formally reported into the Quality and Safety Executive Committee. This oversight committee was chaired by the Medical Director and infection prevention and control was a standing agenda item at these meetings. Minutes of quarterly meetings reviewed by inspectors included reference to reporting from the Infection Prevention and Control Committee.

The hospital management organisational diagram provided to HIQA also indicated formal lines of communication between the Quality and Safety Executive Committee and the Hygiene Services Committee and the Drugs, Therapeutic and Antimicrobial Stewardship Committee at the hospital.

**Monitoring and evaluation**

There was a planned and organised monitoring programme at the Royal Victoria Eye and Ear Hospital. An annual infection prevention and control report was produced by the Infection Prevention and Control Team which included data in relation to the parameters monitored by the team. The hospital monitored healthcare-associated infection and antimicrobial-resistance rates and collected key performance indicators and other relevant indicator data to assess the effectiveness of the infection prevention and control activities.

Hospital management monitored the following key performance indicators in relation to the prevention and control of healthcare-associated infection in line with HSE reporting requirements:

- hospital-acquired *Staphylococcus aureus* bloodstream infection
- hospital-acquired *Clostridium difficile* infection.

Data reviewed by inspectors showed that the number of cases of these types of infection at the hospital were in line with national HSE performance indicator targets. The hospital reported one episode of hospital-acquired *Staphylococcus aureus* bloodstream infection in 2017.
Hospital management also monitored performance in respect of the following indicators:

- percentage compliance of hospital staff with the World Health Organisation’s five moments of hand hygiene using the national hand hygiene auditing tool
- alcohol hand sanitiser gel consumption
- median hospital total antibiotic consumption.

It was reported to inspectors that the hospital had committed to monitor additional key performance indicators in line with the updated 2018 HSE national reporting requirements as follows:

- new cases of Carbapenemase Producing Enterobacteriaceae (CPE)
- implementing the screening requirements for CPE
- implementing the national policy on restricted antimicrobial agents.

A number of other parameters relating to the prevention and control of healthcare-associated infection were regularly monitored by the Infection Prevention and Control Team and these included the following:

- surveillance of ‘alert’†† organisms and ‘alert’ conditions‡‡
- clusters or outbreaks of infection
- bloodstream infections
- hospital-acquired infection and multidrug-resistant organisms
- notifiable infectious diseases
- environmental monitoring in operating theatres.

All required notifiable infectious diseases data from the hospital was reported to the Health Protection Surveillance Centre (HPSC) through the Computerised Infectious Disease Reporting System (CIDR) managed by the HPSC.

Measuring and assessing current practices through collection and analysis of data to identifying trends and areas for improvement and implementing the necessary changes to improve the service are key components of a quality improvement framework. The hospital devised and monitored local hospital key performance indicators in relation to infection prevention and control.

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** Antimicrobial is a substance that kills or inhibits the growth of micro-organisms such as bacteria, viruses or fungi (an antibiotic is a type of antimicrobial).

†† Alert organisms are micro-organisms that pose a significant risk of transmission to non-infected patients or staff, resulting in colonisation or healthcare-associated infection, or that pose a significant risk of transmission to non-infected people in the wider population or community.

‡‡ Alert conditions include physical symptoms such as skin rashes, vomiting, diarrhoea, respiratory illness that could be due to an infectious illness.
These included the following:

- rate of post-operative endophthalmitis (elective cataract surgery)
- rate of post intravitreal injection endophthalmitis
- number of new cases of hospital-acquired Methicillin-Resistant *Staphylococcus aureus* (MRSA)
- number of peripheral vascular catheter device-related infections
- number of peripheral vascular catheter-related blood stream infection
- number of urinary catheter-related blood stream infection
- number of hospital-acquired pneumonia infection in patients with a tracheostomy.

Inclusion of multiple outcome measures enables a more comprehensive evaluation of the effectiveness of infection prevention and control practices. The Infection Prevention and Control Team conducted audits across the hospital in relation to:

- antimicrobial stewardship
- hand hygiene compliance
- environment and equipment hygiene
- waste management
- linen management
- sharps management.

Performance data was tracked and trended by the Infection Prevention and Control Team in order to identify opportunities for improvement. Performance data in relation to environment and equipment hygiene, hand hygiene compliance, surveillance data was openly shared with staff, patients and visitors on a notice board in the clinical area inspected.

Data in respect of legionella water test results and local audit findings were presented at infection prevention and control committee and hygiene committee meetings at the hospital. Findings in regard to hand hygiene, hospital hygiene audits and ongoing surveillance of key multidrug-resistant organisms monitored at the hospital will be presented in section 2.6 in this report.
2.2 Risk management

**Line of enquiry**

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

The Royal Victoria Eye and Ear Hospital had systems in place to identify and manage risk in relation to the prevention and control of healthcare-associated infections.

Inspectors were informed by hospital management that local department-specific risk registers were in place for each department at the hospital. Infection prevention and control-related risks were entered directly onto the corporate risk register. The corporate risk register was maintained by hospital management and included two high-rated risks:

- lack of conventional ventilation in five operating theatres
- non-compliance with infection control standards due to lack of en-suite isolation rooms.

Additionally, two moderate-rated risks relating to infection prevention and control included non-compliant clinical hand wash sinks and risk of legionnaire’s disease. Collectively these risks coupled with a dated building do not facilitate infection prevention and control in an acute hospital setting.

To address the significant risks identified, a number of control measures and key actions to mitigate or manage these risks had been implemented by the hospital. Quarterly testing and monitoring of air samples in five operating theatres were undertaken by the Infection Prevention and Control Team. A feasibility study was underway in relation to retrofitting theatres with new ventilation systems to facilitate compliance with best practice theatre ventilation guidance. A new theatre for cataract operations compliant with best practice ventilation guidance had been created in the pre-existing hospital building and officially opened in July 2017.

Additionally a space committee has been convened by hospital management to identify an appropriate physical area which would support the development of two single en-suite isolation facilities to include one pressurised isolation room.

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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.

Retrofitting refers to the addition of a new technology or feature to an older system.
Programmes were on-going to mitigate against lower graded risks identified on the risk register. An ongoing sink replacement programme was underway and funding had been requested from the HSE in respect of this programme. Findings in relation to legionella will be presented in section 3.0 in this report.

Risks identified at a local level were escalated to the Quality and Safety Executive Committee who in turn, entered risks on the corporate risk register. The corporate risk register was a standing agenda item at quarterly meetings and was reviewed and discussed. The Clinical Director as chair of the Quality and Safety Executive Committee, with the hospital’s CEO, reported on hospital risks to the Hospital Council. Inspectors were informed that risks which could not be effectively mitigated at a local hospital level were escalated to the Hospital Group through directorate reporting structures. Inspectors were informed that serious incidents were also recorded in the National Incident Management System.

††† The State Claims Agency National Incident Management System is a risk management system that enables hospitals to report incidents in accordance with their statutory reporting obligation.
2.3 Policies, procedures and guidelines

Line of enquiry
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 comprehensive suite of infection prevention and control policies in relation to standard and transmission-based precautions, multidrug-resistant organisms and outbreak management. Hospital policies relevant to infection prevention and control were developed by the Infection Prevention and Control Team and approved by the Infection Prevention and Control Committee and or the Consultant Microbiologist.

The hospital had an electronic document management system to facilitate document version control. Inspectors found that these documents were accessible to staff in the clinical area inspected.

Current HSE policy states that hospital policies, procedures and guidelines should be reviewed every three years. Apart from a policy in relation to *Clostridium difficile* and transmission-based precautions which was due to be updated, all other policies in relation to infection prevention and control reviewed by inspectors were up to date. The hospital also needs to ensure that the policy and procedure for the prevention and control of multidrug-resistant organisms is updated in relation to CPE to reflect the latest national CPE screening guidance.

The hospital also had an antimicrobial prescribing guideline which was available for staff to download as a smartphone application.
2.4 Staff training and education

**Line of enquiry**

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

**Infection prevention and control education**

Infection prevention and control education and training is essential to ensure that staff have the knowledge, skills and training required to consistently implement effective infection prevention and control practices.\(^6\)

Infection prevention and control education was mandatory for relevant hospital staff at induction with updates every two years thereafter. Infection prevention and control training at the hospital included the following:

- Standard and transmission-based precautions.
- MRSA, CPE and other relevant multidrug-resistant organisms.
- *Clostridium difficile* infection.
- Transmissible spongiform encephalopathies (TSE) and Creutzfeldt-Jakob disease (CJD).
- Legionella management.
- Infection control regarding ocular diseases.
- Corneal pathogens & antibiotic susceptibility.
- Waste management including sharps management.

The Infection Prevention and Control Clinical Nurse Specialist’s provided additional infection prevention and control education sessions on demand when requested or in response to an issue such as an outbreak of infection. In addition education was also provided on reserved slots at in-service education days. Inspectors were informed that a competency-based training programme for nursing staff was provided in relation to intravenous cannulation upon induction and commencement of their employment at the hospital.

Training in relation to antimicrobial stewardship was provided to relevant clinical staff at induction. The hospital was currently exploring the possibility of introducing an eLearning competency-based programme in relation to drug prescribing for medical staff. All staff at the hospital had access to advice from infection prevention and control clinical nurse specialists and pharmacists who were actively involved in promoting antimicrobial stewardship at the hospital. Clinical staff had access to advice from a consultant clinical microbiologist as required.
Hand hygiene training

National hand hygiene guidelines recommend that hand hygiene training should be mandatory for relevant staff at induction and every two years thereafter. Inspectors were informed that hand hygiene training was mandatory for staff at induction and every two years thereafter at the hospital.

Inspectors reviewed hand hygiene training records for relevant staff across all disciplines. An infection prevention and control report for 2017 showed that 97% of appropriate staff had undergone hand hygiene training in the previous two year period. Documentation viewed by inspectors showed that 100% of staff working on the clinical area inspected had completed hand hygiene training in the previous two years.

On the day of inspection, documentation reviewed by inspectors showed that 90% of all hospital staff were up to date with hand hygiene training. Data breakdown showed that 87% of consultants and non-consultant hospital doctors were up to date with this training at the time of inspection. Staff attendance at training was recorded electronically which facilitated central tracking and trending of attendance by each staff discipline.

A hand hygiene awareness day was held on May 2017 as part of the hand hygiene education programme which included demonstrations and analysis of techniques using ultraviolet light box. Education was evaluated through staff questionnaires and observational audits. Hand hygiene prompts in the form of infection control newsletters, posters and leaflets were openly displayed and available on the clinical area inspected.
2.5 Implementation of evidence-based best practice

Line of enquiry
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.

Surveillance of invasive-device related and surgical site infection

The surveillance of healthcare-associated infection is one of the core components of an effective infection prevention and control programme.\textsuperscript{8,9,10} 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.\textsuperscript{11,12,13} 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.\textsuperscript{14,15} Surveillance of invasive device-related and surgical site infection was reviewed during this inspection.

Surveillance of peripheral vascular catheter and urinary catheter device-related bloodstream infection was routinely performed at the hospital. Surveillance data reviewed by inspectors showed that catheter-related bloodstream infection rates were in line with hospital performance indicators for 2017. As part of the hospital’s ongoing surveillance programme, the hospital undertook a detailed analysis of all cases of bloodstream infections associated with an invasive medical device.

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. Targeted surgical site infection surveillance in respect of elective cataract surgery and post intravitreal injection was undertaken by the Infection Prevention and Control Team. Surveillance data reviewed showed that infection rates were in line with hospital key performance indicator targets for 2017. Surgical site infection surveillance in respect of Ear, Nose and Throat (ENT) surgery was also performed. A surveillance report reviewed by inspectors showed that post-operative infection rates for this speciality was 0.18% for 2017. The hospital should ensure that local surgical site surveillance protocols adhere to other European frameworks so that data is benchmarked to ensure comparability of data with other similar type hospitals, both nationally and internationally.

The hospital had guidelines in relation to surgical antimicrobial prophylaxis and care of surgical wounds as recommended.\textsuperscript{16,17,18,19}
Care bundles

The implementation of care bundles to prevent invasive device-related infection was reviewed in the clinical area inspected. Care bundles for intravascular devices had been implemented in line with national guidelines. Relative to the patient profile, urinary catheter care bundles were infrequently used. Monthly peripheral vascular catheter care bundle audits were undertaken and results in the clinical area inspected showed 100% compliance in March 2018. Full implementation of all evidenced-based care bundle components has shown to improve patient outcomes.

Monthly HSE Nursing and Midwifery Quality and Care-Metrics recorded at the hospital also included some elements of intravascular catheter care bundles. Nursing metric results in relation to invasive medical devices showed 80% and 100% compliance for January and February 2018 respectively in the clinical area inspected.
2.6 Prevention and control of multidrug-resistant bacteria

**Line of enquiry**

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

An effective infection prevention and control programme 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 Hospital systems to prevent and control multidrug-resistant organisms**

Inspectors looked at hospital-wide systems and processes in place at the hospital to prevent and control multidrug-resistant organisms.

**Hospital isolation facilities**

It is important that the physical healthcare infrastructure minimises the spread of healthcare-associated infections, including multidrug-resistant organisms. Patients with suspected or confirmed communicable disease including healthcare-associated infection and multidrug-resistant organisms should be placed in a suitable single isolation room in line with national guidelines.

Hospital managers told inspectors that there were 23 in-patient and 25 day case beds at the hospital. The hospital had nine single rooms in a private wing at the hospital, none of which had en-suite facilities or a separate clinical hand wash sink for staff. There were no neutral or negative pressure isolation facilities at the hospital.

On the day of inspection there were 31 in-patients in the hospital of which five patients required single room isolation and were isolated in single rooms in the private wing as appropriate.

**Microbiological screening and surveillance of antimicrobial-resistant bacteria**

Identifying patients that are vulnerable to infection is a critical step during admission, discharge or transfers within or between healthcare services to ensure seamless integrated care. The assessment of patients on admission or on first presentation should take into consideration the patient’s risk of either acquiring or transmitting an infection.
Processes were in place in the clinical area inspected to facilitate identification of patients who required transmission-based precautions and to screen patients for multidrug-resistant organisms in line with national guidelines.

Screening and alert pathogen surveillance is an important protection for the hospital and patients it treats in monitoring multidrug-resistant organism colonisation rates. Nursing admission documentation reviewed by inspectors included a comprehensive infection control risk assessment section in respect of all patients admitted or transferred from other wards or healthcare facilities.

Patient assessment at the hospital included screening patients for multidrug-resistant microorganisms where appropriate and in accordance with national guidelines requirements. Hospital staff told inspectors that screening for MRSA, Vancomycin-resistant *Enterococci* (VRE) and CPE, was in line with the current national guidelines. MRSA screening was requested prior to admission for patients deemed to be in an at-risk category by the hospital. The team liaised with patients and general practitioners when MRSA decolonisation was required prior to admission.

The Infection Prevention and Control Team advised staff in relation to screening and isolation requirements for in-patients colonised or infected with a transmissible organism. In addition, patient healthcare records were discreetly labelled to alert staff when patients previously colonised or infected with a transmissible infection were readmitted to the hospital. An infection prevention and control alert system was available on existing hospital information systems which identified patients previously colonised or infected with MRSA. Inspectors were informed that the hospital was working towards implementing a similar system in respect of VRE and CPE.

The Infection Prevention and Control Team performed daily ‘alert’ organism and condition surveillance to identify patients requiring infection control precautions and to identify unusual clusters of infection. The team provided ongoing surveillance of cases of colonisation or infection with multidrug-resistant organisms. Surveillance data in relation to antimicrobial-resistant bacteria was reported at weekly infection prevention and control team meetings and quarterly infection prevention and control committee meetings and to all relevant clinical staff. There were no healthcare-associated infections in relation to MRSA, VRE or CPE reported in 2017.

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††† Performing active surveillance cultures, active screening tests or contact screening of at-risk patients to detect colonisation with a multidrug-resistant organism.

§§§ 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.
Hand hygiene

Service providers must adhere to hand hygiene practices and implement the essential components of the World Health Organization (WHO) multimodal improvement strategy\textsuperscript{24} to minimise the risk of acquiring or transmitting infection.

The Royal Victoria Eye and Ear Hospital participated in national hand hygiene audits, the results of which are published twice a year. The hospital achieved compliance rate of 89.7\% in the national hand hygiene audit in October/November 2017 which is just below the current required compliance target of 90\% set by the HSE. Data reviewed showed that the hospital had not managed to reach or exceed the required target since 2013. The hospital needs to continue to build on achievement to date in relation to hand hygiene compliance to ensure that the hospital achieves and maintains the required national target.

Local hand hygiene compliance audits were also undertaken across the hospital on a regular basis. Hand hygiene audits in the clinical area inspected showed that staff in this area achieved 90\% and 87\% for hand hygiene compliance in May and October 2017 respectively.

Alcohol hand gel was available at the point of care in the clinical areas inspected as recommended. The design of clinical hand wash sinks in patient care areas inspected were compliant with relevant guidance and hand hygiene signage was visible.

Hygiene audits

The hospital had implemented information technology software to facilitate audit of both hospital hygiene and clinical practice at the hospital. This system facilitated electronic recording of audit findings and trending and analysis of audit results and communication of issues that require action to the hospital management team.

Monthly hygiene audits in clinical and non-clinical departments in the hospital were undertaken by the Infection Prevention and Control Team and the Hygiene Services Team. It was reported to inspectors that weekly audits in targeted areas were also performed by the local manager in the clinical area inspected of which results were escalated to the Infection Prevention and Control Team. Inspectors observed that the frequency of the environmental hygiene audit schedule reviewed was not graded according to the risk profile of hospital departments as recommended.\textsuperscript{25,26}

Monthly hygiene audit findings were fed back to staff in clinical areas and senior management teams. A quality improvement action plan was implemented if areas for improvement were identified. Action was taken to address any areas for improvement. Infection prevention and control hygiene audit results were presented and reviewed at hygiene services committee meetings held monthly. The committee chaired by the Director of Nursing included representatives from the Infection
Prevention and Control Team, and managers from the contract cleaning company with responsibility for environmental cleaning at the hospital.

A hospital hygiene audit report presented in the infection control annual report showed that the hospital achieved an overall compliance of 87% with desirable hygiene standards in 2017. Data breakdown showed an overall compliance of 73%, 89% 96% and 88% was achieved for the general environment, patient care areas, patient equipment and toilet facilities respectively in this audit. The hospital had cleaning specifications for hospital hygiene detailing the elements to be cleaned, the required cleaning method, frequency of cleaning and staff discipline responsible, which is recommended in line with national guidelines.

Hospital management told inspectors that apart from nursing and healthcare assistants, cleaning resources were not provided at the hospital overnight. Cleaning specifications should be reviewed on an ongoing basis to ensure it continually meets the needs of patients and staff and visitors alike and results in a consistently high standard of cleanliness.

**Antimicrobial stewardship**

Antimicrobial stewardship programmes including rationalisation of antimicrobial usage and surveillance of antimicrobial consumption is necessary to address emergent serious threats of antimicrobial resistance. The hospital had an antimicrobial stewardship programme in place which was coordinated by the Drugs, Therapeutic and Antimicrobial Stewardship committee at the hospital. The Infection Prevention and Control Clinical Nurse Specialist, microbiology consultant and pharmacists at the hospital undertook antimicrobial ward rounds on a monthly basis. A recent electronic application on trial by the hospital generated automatic reports in relation to antimicrobial prescribing. Relevant findings and recommendations were discussed by the Consultant Microbiologist with consultants and clinical staff.

Tackling the emergence of antimicrobial resistance including CPE requires enforcing antimicrobial stewardship policies to avoid unnecessary use of broad-spectrum agents (especially carbapenems e.g. meropenem, **imipenem, ertapenem**). National guidelines\(^{27}\) recommend that hospitals have a process in place to facilitate

\(^{27}\) Meropenem is an ultra-broad-spectrum antimicrobial belonging to a class of antimicrobial known as carbapenems. It may be used to treat a wide range of infection types however treatment options are very limited for Gram-negative organisms resistant to meropenem. Greater use of meropenem has begun to see limited instances of the emergence of resistance to this drug — some strains of Gram-negative bacteria have evolved to produce chemicals which disable meropenem and other carbapenem antimicrobials from working. These chemicals are known as carbapenemases. Treatment options for carbapenemase producing bacteria (CPE) are limited to a handful of antimicrobial choices which are often less effective than meropenem, and sometimes more toxic.
pre-authorisation for the use of all carbapenem antibiotics by an infection specialist (Consultant or Specialist Registrar in Clinical Microbiology or Infectious Diseases).

In line with national guidelines the hospital had introduced restricted antimicrobial prescribing rights for the broad-spectrum carbapenem antibiotic meropenem which is a last line antibiotic used to treat serious gram-negative infection. Guidelines in relation to restricted antimicrobial prescribing was available to support staff at the hospital. Antimicrobial consumption data was also reported to the Health Protection Surveillance Centre (HPSC) for comparative analysis nationally.

The Royal Victoria Eye and Ear 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.

**Management of outbreaks**

The hospital had a system in place to manage and control outbreaks of infection in a timely and effective manner. Documentation reviewed by inspectors showed that there had been no outbreak of infection at the hospital in the preceding 12 months. The Infection Prevention and Control Team undertook a detailed investigation of any cluster of infection identified through surveillance. The team told inspectors that they had recently investigated five cases of infection and or inflammation following an ophthalmic procedure at the hospital. The team concluded that there was no outbreak of infection and were addressing the findings of this investigation. This included devising a standard operating procedure and providing training to support staff.

Challenges faced by the hospital to effectively manage patients with transmissible infection included dated hospital infrastructure and a lack of isolation rooms with en-suite facilities. Notwithstanding these challenges hospital management told inspectors that control measures in relation to transmissible infections had been implemented for patients who required transmission-based precautions.

It is recommended that health care workers should get the flu vaccine to protect themselves, their families and their patients. Research in European healthcare institutions shows a link between increased vaccinations and a reduction in the rates of flu-like illness. In 2017 the HSE aimed to achieve a target of 40% flu vaccination uptake among health care workers. A review of the latest influenza vaccine uptake figures\textsuperscript{28} for December 2017 showed that influenza vaccine uptake figures were not available for the hospital. Influenza vaccine uptake figures for September 2017 showed 28% uptake by staff. The hospital should continue with measures already implemented to promote healthcare worker uptake of seasonal influenza vaccine.
2.6.2 Prevention and control of multidrug-resistant organisms in the clinical area inspected

Systems and measures to prevent the spread of multidrug-resistant organisms were reviewed in the clinical area inspected. Multiple factors in relation to hospital infrastructure at the Royal Victoria Eye and Ear Hospital restricted the hospital’s ability to effectively prevent and control healthcare-associated infection. However, despite these limitations, inspectors saw evidence of good practices and procedures in place aimed at preventing the spread of multidrug-resistant organisms.

Clinical area inspected

The infrastructure of the ward inspected was dated and was not in line with recommended specifications and standards of a modern patient care facility. The configuration and design of the ward did not facilitate the effective management of patients with transmissible infection as there were no isolation rooms and none of the rooms had en-suite facilities. Coupled with large multi-occupancy nightingale-style rooms, limited space between some beds, and insufficient ancillary rooms it did not facilitate effective infection prevention and control. Additionally there was an insufficient number of toilet and shower facilities on the ward.

The ward comprised 22 operational in-patient beds located on two floors; the ground floor and first floor. The ground floor comprised two two-bedded and one four-bedded room and one seven-bedded nightingale-style room of which, due to funding issues, four beds were operational at any given time. On the day of inspection, three additional beds had been opened so that additional patients admitted from the Emergency Department could be accommodated. The first floor comprised one eight-bedded nightingale-style room mainly used for paediatric patients and one two-bedded room. None of the rooms had en-suite toilet or shower facilities.

On the day of inspection three patients who required transmission-based precautions were accommodated in single rooms in an adjoining private wing. Inspectors were informed that a dedicated bathroom or commode was assigned to patients who required transmission-based precautions. There were no en-suite facilities or dedicated hand hygiene sink for staff in these rooms.

Opportunities for improvement were observed in relation to the management and storage of patient equipment in the clinical area inspected. There were no designated storage facilities for patient equipment and significant inappropriate

†††† 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.
storage of patient equipment was observed. A number of intravenous drip stands, a commode, and foldable beds were inappropriately stored in a toilet and bath/shower facility. Stains, dust and or rust was observed on some of these items. An open trolley with clean linen was stored in the ante room of this facility. Such storage is not appropriate and was highlighted at the time of inspection. Light dust was also observed on some items of patient equipment stored uncovered in patient care areas. The hospital had cleaning specifications for patient equipment and a system for identifying cleaned patient equipment however there were some inconsistencies observed in relation to labelling of clean items not in use. An overall hospital hygiene audit report showed the ward achieved 91% compliance with desirable standards for patient equipment hygiene.

Overall environmental surfaces inspected were generally clean with few exceptions. A standard operating procedure clearly identified environmental cleaning specifications for the clinical area inspected. At the time of inspection a cleaning checklist in a toilet facility, reviewed by inspectors showed that one full clean had been recorded in a 24-hour period. There was no evidence to suggest that a check clean had taken place as recommended. This is particularly important in light of the limited number of toilet facilities on the ward and to ensure cleanliness of these facilities at all times. A similar finding was observed in a previous HIQA inspection. Surgical wards are categorised as high-risk areas therefore minimum cleaning frequencies including check cleaning schedules should be in line with recommended cleaning frequencies for such areas.

An overall environmental hygiene audit report showed that the clinical area inspected achieved on average 88% compliance with desirable hygiene standards in 2017. An environmental hygiene audit report displayed on a ward corridor showed 85% compliance was achieved between November 2017 and January 2018.

The ward had a treatment room which was used for medication preparation. This room also contained a patient procedure chair, and on the day of inspection a patient and relative was accommodated in the room. It is recommended that patient procedures are performed in a separate area and not in a designated area for medication injection preparation and sterile supply storage in line with recommended guidelines. Sterile equipment should be stored in a designated clean supply storeroom or in fully enclosed units in order to limit the risk of inadvertent contamination of sterile items.

Inspectors also found that there was inappropriate storage of clean items and supplies in a ‘dirty’ utility room. This practice increases the risk of inadvertent contamination of sterile items.

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.
contamination of clean supplies and could increase the risk of spreading infection. Ward supplies should be stored in a designated storage facilities. There was no dedicated hand hygiene sink in this room.

A number of maintenance issues were identified during the course of the inspection which had the potential to impact on infection prevention and control measures. For example, surfaces and finishes including wall, ceiling and skirting board paintwork, door finishes and flooring in some areas were poorly maintained and together with exposed pipework and electrical wiring as such did not facilitate effective cleaning.

The clinical area inspected did not have a dedicated room for the storage and management of cleaning equipment. The ward cleaning trolley and supplies were stored in a central location in the hospital. Ideally, hospital wards should have a designated cleaner’s room equipped with a janitorial sink, handwashing facilities and space for cleaning equipment.

**Central location for reprocessing cleaning textiles**

The central location for reprocessing cleaning textiles such as mop heads was located in a multi-functional room which was inappropriate. The laundering area was not self-contained, and was also used as an office, and for storage of floor buffering equipment and staff personal belongings. Notwithstanding this the functional separation of the clean and dirty phases of the laundering process was observed. Clean textiles were stored in enclosed storage baskets. There was no dedicated hand hygiene sink for staff in the room. Wall paintwork was damaged and poorly maintained which does not facilitate effective cleaning.

Inspectors were informed by staff that the appropriate temperature was being achieved for washing reusable mop heads in line with current best practice guidelines. Assurance mechanisms that verify compliance with these practice guidelines should be in place. Ward cleaning trolleys were stored in an annex hallway outside the room and were observed to be stored clean. Reusable spray bottles for general purpose cleaning were cleaned and dried at the end of each cleaning session.

Similar to a previous inspection in 2015, HIQA recommends that the hospital review this laundering facility from an infection prevention and control context and to ensure compliance with best practice guidelines.
3.0 Progress since the previous HIQA inspection

HIQA reviewed the quality improvement plan developed by the hospital following the last HIQA infection prevention and control inspection in 2015.

It is acknowledged that the age of the hospital building posed many challenges for hospital management and with this in mind the hospital was endeavouring to improve the hospital environment. A number of targeted refurbishment and upgrading measures had been implemented by the hospital since the last inspection. For instance ceiling and floor tiles and upholstery work had been either upgraded or replaced in some areas. Additionally most of the blinds in clinical areas had been upgraded from fabric to washable blinds. Ongoing painting programmes were in progress throughout the hospital. The hospital had a sink replacement programme in place and had continued to replace and update sinks on a phased basis. As alluded to previously in this report a new cataract theatre had been officially opened in June 2017.

A formal legionella hospital site risk assessment had been performed at the hospital in March 2017. The age of the building and complicated water system posed many challenges for the hospital necessitating ongoing remedial and upgrading works. An external contract company was responsible for managing and maintaining the water system at the hospital. Documentation reviewed by inspectors showed that water coolers were upgraded and a copper silver ionization system was installed in 2017. Hospital management reported that internal control and preventative measures in relation to water-borne infection were implemented which included regular outlet flushing, and microbiological testing of water. Water test results and control checks were electronically accessible to the Infection Prevention and Control Team. Governance and oversight in relation to water-borne infections was the responsibility of the Infection Prevention and Control Committee at the hospital.

The Quality and Safety Department had conducted a patient experience survey in October 2017. The survey found that 90% of 728 respondents reported that the hospital premises was clean and safe. The hospital management teams were working to address other issues identified in the report.
4.0 Conclusion

Effective leadership, governance and management arrangements were evident around the prevention and control of healthcare-associated infection at the Royal Victoria Eye and Ear Hospital on the day of inspection. The hospital management team was 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. Hospital managers told inspectors that screening for multidrug-resistant organisms including Carbapenemase Producing Enterobacteriales was in line with national guidelines. This was further validated following discussions with staff in the clinical area inspected. This critical infection prevention and control measure is of the utmost importance in light of the National Public Health Emergency in relation to CPE. The hospital also had a structured antimicrobial stewardship programme in place.

Overall the patient environment inspected was generally clean with few exceptions. An electronic hospital auditing system facilitated regular trending, analysis and oversight of audit results at both local and senior management level. Opportunities for improvement were identified in relation to the management and storage of equipment compounded by a lack of appropriate ancillary storage facilities. Older and poorly designed hospital infrastructure makes cleaning more difficult and in view of this the physical environment needs to be effectively maintained to reduce the risk of spread of infection; this needs to be taken into consideration when allocating resources.

Inspectors found that the hospital had a suite of infection prevention and control policies to support staff to implement best practice in relation to infection prevention and control. Care bundles had been implemented and the hospital had an audit and feedback programme in place. The hospital needs to continue working towards achieving and sustaining full compliance with national hand hygiene targets in relation to hand hygiene compliance.

The Royal Victoria Eye and Ear Hospital dates back to 1897 and therefore was not aligned to modern healthcare facility requirements. Factors in relation to broader hospital infrastructure including lack of isolation rooms and en-suite facilities and lack of theatre ventilation systems which can contribute to the onset of outbreaks of infection needs to be substantively reviewed and addressed. The dated physical infrastructure remained a challenge for both staff and patients at the hospital and hospital management needs to be fully supported at both hospital group and national level in this regard.
5.0 References


23. Health Service Executive. Requirements for screening of Patients for Carbapenemase Producing Enterobacteriaceae (CPE) in the Acute Hospital Sector.


## 6.0 Appendices

**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**

<table>
<thead>
<tr>
<th>Number</th>
<th>Line of enquiry</th>
<th>Relevant National Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>The hospital has formalised governance arrangements with clear lines of accountability and responsibility around the prevention and control of healthcare-associated infections.</td>
<td>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</td>
</tr>
<tr>
<td>1.2</td>
<td>Risks in relation to the prevention and control of infection are identified and managed.</td>
<td>2.1, 2.3, 2.5, 3.1, 3.6, 3.7, 3.8</td>
</tr>
<tr>
<td>2</td>
<td>The hospital has policies, procedures and guidelines in relation to the prevention and control of infection and hospital hygiene.</td>
<td>2.1, 2.5, 3.1, 3.6, 3.8, 5.4, 7.2</td>
</tr>
<tr>
<td>3</td>
<td>Hospital personnel are trained and in relation to the prevention and control of healthcare-associated infection</td>
<td>2.1, 2.8, 3.1, 3.2, 3.3, 3.6, 6.1, 6.2</td>
</tr>
<tr>
<td>4.1</td>
<td>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.</td>
<td>1.1, 2.1, 2.3, 3.5</td>
</tr>
<tr>
<td>4.2</td>
<td>The hospital has systems in place to detect, prevent, and respond to healthcare-associated infections and multidrug-resistant organisms in line with national guidelines.</td>
<td>2.1, 2.3, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.8</td>
</tr>
</tbody>
</table>
Report of the unannounced inspection at the Royal Victoria Eye and Ear Hospital, Dublin

For further information please contact:

Health Information and Quality Authority
Dublin Regional Office
George’s Court
George’s Lane
Smithfield
Dublin 7

Phone: +353 (0) 1 814 7400
Email: qualityandsafety@hiqa.ie
URL: www.hiqa.ie

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