



**Health
Information
and Quality
Authority**

An tÚdarás Um Fhaisnéis
agus Cáilíocht Sláinte

Report of the unannounced inspection at Midland Regional Hospital Portlaoise.

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: 11 April 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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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.

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. 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*² which was published in May 2017 and is available on HIQA's website: www.hiqa.ie

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

^{*}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 *Enterobacteriales* (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/>

to the increase of Carbapenemase-Producing *Enterobacteriales* (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.

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 Midland Regional Hospital Portlaoise by Authorised Persons from HIQA; Noreen Flannelly-Kinsella and Kathryn Hanly. The inspection was carried out on 11 April 2018 between 09:30hrs and 16:50hrs.

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:

- Two medical wards.
- One surgical ward.

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.

[†]Carbapenemase-Producing *Enterobacteriales* (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.

2.0 Findings at the Midland Regional Hospital Portlaoise

The following section of this report outlines the main findings of this inspection. The report is structured as follows:

- Section 2.1 outlines the risk identified during this unannounced inspection.
- Sections 2.2 to 2.5 present the general findings of this unannounced inspection which are aligned to the lines of inquiry.

2.1 Risk identified during this unannounced inspection

During an unannounced inspection by HIQA on 11 April 2018, a risk was identified at the Midland Regional Hospital Portlaoise concerning non-compliance with the national screening guidelines³ in relation to Carbapenemase-Producing *Enterobacteriales* (CPE).

In light of the limited treatment options and substantial mortality associated with infections caused by CPE, prevention and control measures are of the utmost importance. Screening[‡] for CPE is considered an essential infection prevention and control strategy. Considering this in the context of the activation of the National Public Health Emergency Plan to address CPE in our health system, HIQA sought assurance regarding arrangements that are in place to ensure compliance with the national guidelines on screening for CPE at the Midland Regional Hospital Portlaoise.

The general manager provided written assurance of arrangements that would be enacted in response to HIQA's letter to ensure compliance with the national policy on screening for CPE at the hospital. Specifically these key actions included:

- Identification of an additional cohort of patients who will require screening.
- Introduction of a hospital-wide CPE awareness education programme.
- Submission of a business case for extra funding to support additional screening costs.
- Monitoring additional screening to address any deficits.

The hospital management team reported that additional challenges were posed by the capacity of testing equipment at the hospital, laboratory staffing resources and availability of information relating to previous admissions at other hospitals. It is acknowledged that the hospital had identified this issue as an area of concern prior to this inspection and had escalated to hospital group level.

A copy of the letter issued to the general manager of the Midland Regional Hospital Portlaoise to seek further assurance regarding the risk identified and a copy of the response and associated assurance and action plan received from the general

[‡]Performing active surveillance cultures, active screening tests or contact screening of at-risk patients to detect colonisation with Carbapenemase-Producing *Enterobacteriales*.

manager of the Midland Regional Hospital Portlaoise are shown in Appendices 2 and 3 respectively.

2.2 Governance and risk management

Inspectors found that there were formalised governance arrangements and organisational structures to support the prevention and control of healthcare-associated infection at the hospital. The general manager held overall responsibility and accountability for the prevention and control of healthcare-associated infection and reported to the Dublin Midland Hospital Group[§] chief executive officer (CEO) at monthly hospital group performance meetings.

It was apparent that the Midland Regional Hospital Portlaoise had actively endeavoured to address the issues identified in HIQA's previous unannounced inspection in 2012. The hospital had worked to strengthen governance and operational arrangements to ensure effective reporting systems in relation to infection prevention and control through a bottom up and top down reporting process.

The infection prevention and control service was delivered by a regional Infection Prevention and Control Team who provided a regional service across three hospitals, one community health organisation and the psychiatric unit at the hospital. The team was co-ordinated by the consultant microbiologist and the assistant director of nursing in infection prevention and control (ADON IPC) who had a joint whole-time equivalent (WTE)^{**} appointment with the other two hospitals in the region, with a 0.3 WTE commitment to the Midland Regional Hospital Portlaoise. With this in mind inspectors found that governance and management arrangements around the prevention and control of healthcare-associated infection were not fully aligned to the current Dublin Midlands Hospital Group governance structure, as one of the three hospitals was part of the Ireland East Hospital Group. This was a legacy arrangement originating from the previous HSE Midland Regional Hospital Group consisting of Tullamore, Portlaoise and Mullingar Regional Hospitals.

The team also included 1.82 WTE infection prevention and control nursing positions based at the Midland Regional Hospital Portlaoise with 0.5 hours dedicated to maternity services. The team also included 1.0 WTE antimicrobial pharmacist and 0.5 WTE surveillance scientist.

[§] Hospital groups: The hospitals in Ireland are organised into seven hospital groups: 1. Ireland East Hospital Group. 2. Dublin Midlands Hospital Group. 3. South/South West Hospital Group. 4. Saolta University Health Care Group. 5. University Limerick Hospitals Group. 6. RCSI Hospitals Group. 7. National Children's Hospital Group.

^{**} 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.

The Infection Prevention and Control Team advised on all aspects of infection prevention and control, performed surveillance of alert organisms and delivered education to all grades of staff. The team also provided education and telephone advice as required to the psychiatric service located at the hospital and the Community Health Organisation in the region. The regional infection prevention and control nursing team met quarterly and prepared an infection prevention and control report for the hospital. Some formalised working arrangements were also in place between the team at the Midland Regional Hospital Portlaoise and their counterparts in other hospitals in the Dublin Midland Hospital Group.

The infection prevention and control service at the hospital was overseen by the Healthcare Associated Infection (HCAI) Committee. Membership of the HCAI Committee included both corporate and clinical representation. The committee chaired by the consultant microbiologist met every six to eight weeks, had defined terms of reference and followed a standardised agenda. The scope of the committee was to advise, monitor and control issues pertaining to infection prevention and control standards, hygiene and other environmental factors. The committee approved the infection prevention and control annual plan and ratified hospital infection prevention and control policies, procedures and guidelines. The hospital had an electronic document management system to facilitate document version control. Inspectors found that these documents were accessible to staff and were up-to-date. In light of the most recent updates in relation to CPE screening, the hospital needs to ensure that the guideline for the control and management of CPE is updated to reflect the latest national guidance in relation to screening for CPE.

The HCAI Committee reported into the Quality and Safety Executive Committee held quarterly. This committee in turn reported directly to the Hospital Management Team. The Hospital Management Team, chaired by the general manager, held weekly operation management meetings. Minutes of meetings reviewed by inspectors showed that infection prevention and control was a standing agenda item.

Additionally, the team undertook daily ward rounds and provided expert advice to hospital committees such as decontamination and hygiene groups. The team also provided advice before and during refurbishment and building projects at the hospital and undertook environmental hygiene audits as part of the hygiene audit team.

The microbiology service provided 24-hour seven-days-a-week access to expert advice by a consultant microbiologist in line with National Standards. Since the last HIQA inspection the microbiology department at the hospital had been accredited by the Irish National Accreditation Board. As highlighted in previous reports, the consultant microbiologist had remained a standalone position leading and providing cover on a 24-hour basis seven-days-a-week across three hospitals in two hospital

groups. Management stated that formalised cover arrangements were in place for periods of leave. It was reported to inspectors that concerns regarding the sustainability of the service had been escalated by the hospital to the Dublin Midland Hospital Group. The hospital group should review this arrangement to be assured that the level of consultant resources allocated is relative to many other similar sized hospitals in Ireland and that the necessary resources are in place to continue to deliver a sustainable service going forward. A consultant microbiologist should have dedicated time to lead the infection prevention and control programme in line with National Standards.

The hospital management organisational diagram provided to HIQA also indicated formal lines of communication between the Hygiene Services Committee and the HCAI Committee at the hospital.

Risk management

The infection prevention and control service used multiple-outcome measures to support the evaluation of the effectiveness of infection prevention and control best practice including:

- surveillance data
- key performance indicator data
- audit findings
- root cause analysis and outbreak control learning points
- patient safety incident reports.

The hospital had systems in place to identify and manage risk in relation to the prevention and control of healthcare-associated infection. Since the last HIQA inspection the hospital had appointed a quality and patient safety manager at the hospital.

An infection prevention and control risk register was developed by the Infection Prevention and Control Team and a number of risks in relation to infection prevention and control were included such as inadequate bed spacing, lack of isolation rooms, lack of negative pressure isolation rooms, non-isolation of patients with multidrug-resistant organisms and screening in relation to CPE.

Infection prevention and control risks were escalated to hospital management and entered on the hospital risk register^{††} as one overarching infection prevention and control risk which was in relation to the potential risk of transmission of infection to

^{††}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.

patients. To address significant risks identified, a number of control measures to mitigate or manage risks had been implemented. Hospital management told inspectors that a business case had been submitted in relation to capital funding to address infrastructural deficiencies and lack of isolation room facilities at the hospital. Since the last HIQA inspection a significant capital development, a new day services building, and a number of refurbishment projects had been completed at the hospital.

Clinical risk management was discussed at HCAI Committee meetings. The quality and patient safety manager reported on clinical risk management and incident reviews relevant to infection prevention and control at quarterly Quality and Patient Safety Executive Committee meetings. Minutes of these meetings reviewed by inspectors showed that incident data was tracked and trended.

Inspectors were informed that infection prevention and control risks which could not be effectively mitigated at a local hospital level were escalated to the Dublin Midland Hospital Group through relevant hospital group reporting structures. Minutes of meetings reviewed by inspectors showed that serious incidents and the risk register were standing agenda items at meetings. Incidents in relation to infection prevention and control were also reported on the National Incident Management System.**

Infection prevention and control education

Infection prevention and control training including hand hygiene training was mandatory for staff at induction and every two years thereafter. This included both formal and informal lectures supplemented with ward-based education sessions and hands-on training. Content included standard and transmission-based precautions and hand hygiene. Some additional topics such as care bundle implementation, aseptic non-touch technique, multidrug-resistant organisms, sharps and bedpan washer training were included. The team also provided training in relation to surgical site infection surveillance to relevant staff at the hospital. Education in relation to antimicrobial stewardship was also provided to medical teams by the consultant microbiologist and the antimicrobial pharmacist. The Infection Prevention and Control Team held a hand hygiene awareness day and an annual infection prevention and control day at the hospital in 2017 which included education in relation to screening for CPE.

National hand hygiene guidelines recommend that hand hygiene training should be mandatory for relevant staff at induction and every two years thereafter. Hand hygiene training can be delivered either by face-to-face training, or by undertaking an e-learning programme or combination of both. Inspectors were informed that

**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.

hand hygiene training was mandatory for relevant staff at the hospital at induction and every two years thereafter in line with national guidelines. At the time of inspection, inspectors were informed that only 65% of hospital staff had attended hand hygiene training in the previous two year rolling period. However minutes of HCAI and Quality and Safety Executive Committee meetings reviewed by inspectors showed that these figures did not reflect the number of staff who had undertaken an e-learning programme. The hospital should ensure that infection prevention and control and hand hygiene training is centrally tracked and trended to facilitate oversight of training, provide assurances to hospital management in relation to staff training and to target improvements where indicated.

At the time of inspection 95% of staff in the surgical ward had attended hand hygiene training in the previous two years. Training records in relation to the medical wards inspected showed that 61% and 89% of staff were up-to-date with infection prevention and control training which included hand hygiene.

All staff at the hospital had access to advice from the Infection Prevention and Control Team, the antimicrobial pharmacist and the consultant microbiologist.

2.3 Infection surveillance

In compliance with the National Standards, the infection and control service had an infection surveillance programme in place with included surveillance of:

- 'alert' organisms and 'alert' conditions^{§§}
- multidrug-resistant organisms and healthcare-associated infection
- clusters or outbreaks of infection
- hospital-acquired bloodstream infection
- maternal and neonatal bloodstream infection
- targeted caesarean section surgical site infection.

The hospital management monitored and regularly reviewed performance indicators in relation to the prevention and control of healthcare-associated infection in line with HSE national reporting requirements⁴ and the HSE's Business Information Unit.⁵ The Infection Prevention and Control Team performed enhanced *Clostridium difficile* infection surveillance and molecular typing of isolates was undertaken for hospital-acquired cases. A root cause analysis was undertaken by the team along with relevant medical and nursing teams for all hospital-acquired *Clostridium difficile* infection and *Staphylococcus aureus* bloodstream infection in line with national standards. Documentation reviewed by inspectors showed that a number of root cause analysis were performed in 2017. Recommendations following the review were circulated to relevant staff and presented at the HCAI Committee meetings.

Data reviewed by inspectors following this inspection showed that the rate of new cases of *Clostridium difficile* infection was slightly above the national HSE performance indicator in January 2018. Minutes of the HCAI Committee meeting held in March 2018 and reviewed by inspectors showed that findings and recommendations in relation to a root cause analysis for one case of hospital-acquired *Clostridium difficile* infection in January 2018 was presented. Such analysis is important from a learning and improvement perspective.

Hospital-acquired *Staphylococcus aureus* bloodstream infection at the hospital was in line with the national performance indicator for the same period.

Surveillance of alert organisms and alert conditions were carried out daily. The surveillance scientist with the infection prevention and control nurses produced surveillance reports with a breakdown of cases of infection which were fed back locally at HCAI meetings. It was reported to inspectors that surveillance reports were not routinely disseminated to clinical departments at the hospital.

^{§§}Alert conditions include physical symptoms such as skin rashes, vomiting, diarrhoea, respiratory illness that could be due to an infectious illness.

A formal legionella hospital site risk assessment had been performed at the hospital in 2016 and an action plan had been implemented in relation to the findings. Hospital management reported that internal control and preventative measures in relation to water-borne infection were implemented including regular outlet flushing. Microbiological testing of water was undertaken by an external company with governance in relation to water-borne infections provided by the general manager and the HCAI Committee. The Regional Environmental Monitoring Committee, and the local Maintenance Committee were responsible for water management at the hospital. National guidelines recommend that a legionella risk assessment is performed and reviewed on an annual basis and independently reviewed every two years.^{6,7}

Surgical site infection surveillance

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. The hospital had a policy in relation to the prevention of surgical site infection surveillance and guidelines were available for surgical antimicrobial prophylaxis based on best practice guidelines.^{8,9,10,11}

Targeted surgical site infection surveillance in relation to caesarean section surgery was undertaken by the Infection Prevention and Control Team in line with internationally recommended case definitions as part of an ongoing quality improvement plan in the maternity service at the hospital. Performance data was presented in quarterly reports which were circulated to relevant staff and presented at the HCAI and Quality and Patient Safety Executive Committees and at maternity services governance committees. The reports were well presented and easy to interpret showing year-on-year results. An action plan had been implemented in response to surveillance results.

Surveillance data in relation to caesarean section surgery reviewed by inspectors showed that the rate of infection was 8.3% in quarter three 2017, showing a significant improvement from the previous quarter. Surveillance reports identified the grade of surgeons performing the surgery and associated rate of infection; as variation in performance among disciplines affects overall hospital surgical site infection surveillance reports, it is recommended that targeted education and training is focused among grades of staff with higher rates in order to drive and sustain improvement at the hospital.

Minutes of the HCAI Committee meeting held in March 2018 reviewed by inspectors showed that surveillance data in relation to caesarean section surgery infection was presented. Notably this report was then referred to the Maternity Services Governance Committee for review and action. In order to ensure an integrated approach to the prevention and control of healthcare-associated infection at the

hospital, the Infection Prevention and Control Team should remain integral to this review and continue to monitor and advise on implementation of action plans in line with National Standards.

Going forward, it is recommended that the hospital continues to benchmark surgical site infection surveillance data both nationally and internationally to ensure comparability with defined benchmarks.

Invasive-device surveillance

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.^{12,13,14} The hospital did not routinely perform invasive-device related infection surveillance.

Care bundles

The implementation of care bundles to prevent invasive device-related infection was reviewed in both clinical areas inspected. Care bundles for intravascular devices, urinary catheter care and central venous catheter devices had been implemented at the hospital in line with national guidelines. It was reported to inspectors that ventilator-associated pneumonia care bundles had also been implemented in the Intensive Care Unit.

Inspectors looked at documentation and spoke with staff relating to infection prevention care bundles in the areas inspected. Inspectors found that care bundles were well embedded in the hospital and staff in the clinical areas visited had good awareness and knowledge of care bundles.

Inspectors were informed that care bundle implementation was audited by local managers on a monthly basis at the hospital. The Infection Prevention and Control Team also undertook care bundle validity audits on a quarterly basis and presented findings at HCAI meetings. Care bundle audit results for 2018 showed some variation in compliance for peripheral vascular catheter care bundles and urinary catheter care bundle compliance in the medical wards inspected.

The hospital had devised a detailed care bundle process document which clearly identified actions required when full compliance was not achieved including incident reporting. The hospital should continue to embed care bundles into routine practice as full implementation of all evidence-based care bundle components has shown improved patient outcomes.

Antimicrobial stewardship

Tackling the emergence of resistance including CPE requires enforcing antimicrobial stewardship policies to avoid unnecessary use of broad-spectrum agents especially carbapenems e.g. meropenem.^{***} The hospital had an antimicrobial stewardship programme in place which was coordinated by a multidisciplinary antimicrobial stewardship team. Since the previous HIQA inspection an antimicrobial pharmacist had been appointed at the hospital.

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 and surgical prophylaxis was available electronically and on a phone application to support staff at the hospital.

Performance and impact of the restricted antibiotic policy was audited and trended and presented by the antimicrobial pharmacist at quarterly HCAI Committee meetings. A quarterly newsletter detailing antimicrobial consumption data with information and education updates to support prudent antimicrobial stewardship practices was produced. The November newsletter reviewed by inspectors showed that carbapenem usage was down by 30% for 2017. An anonymised antimicrobial prevalence and compliance data report was produced biannually and presented to consultants and included consultant-specific antimicrobial prevalence and compliance data to enable comparison by consultant. A business case for an application to support antimicrobial stewardship had been submitted.

The Antimicrobial Stewardship Committee reported to the Drugs and Therapeutic Committee at the hospital on a quarterly basis. Antimicrobial consumption data was also reported to the Health Protection Surveillance Centre (HPSC) for comparative analysis nationally. The 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 at the hospital.

^{***} 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.

2.4 Prevention and control of healthcare-associated infections and multidrug-resistant organisms

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

Surveillance of antimicrobial-resistant bacteria

Identification of patients who had been in contact with or previously diagnosed with a transmissible microorganism on readmission to the hospital is important, because transfer of colonised patients has been identified as a major risk factor for the introduction and spread of multidrug-resistant organisms including CPE. The hospital had a computerised system that alerted staff in situations when at risk patients were readmitted to the hospital. 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.

Nursing admission documentation reviewed by inspectors contained an infection status section. However prompts were limited in relation to screening for multidrug-resistant organisms in line with national guidelines including CPE. Inspectors found that there was lack of clarity among some staff in the areas inspected in relation to the indication for screening for Methicillin-resistant *Staphylococcus Aureus* (MRSA) and Vancomycin-related *Enterococci* (VRE). Coupled with this inspectors found that the management of patients with VRE was not performed in line with national guidelines. As highlighted previously screening for CPE in the clinical areas inspected was not in line with national guidelines.

Patient placement

Patients colonised or infected with multidrug-resistant organisms should be placed in individual single rooms with en-suite toilet facilities. On the day of the inspection, the hospital had 33 single rooms, 26 of which had en-suite facilities. However, this current number of single rooms was insufficient to manage the ever-increasing number of patients requiring isolation for infection prevention and control reasons. These deficiencies had been identified by the hospital and were reflected in the hospital's risk register.

It is recommended that a hierarchy of isolation prioritisation policy for management of patients with transmissible infection should be provided as a quick reference guide for staff in relation to screening and isolation requirements in particular over weekend periods.

^{†††}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.

On the day of inspection all patients colonised and or infected with a transmissible infection were isolated in a single room as appropriate. Staff told inspectors that dedicated nursing staff, as recommended in line with national guidelines, were not routinely available to care for patients with CPE.

Outbreak management

The hospital had a system in place to manage and control infection outbreaks in a timely and effective manner. Documentation reviewed showed that there had been two outbreaks of infection at the hospital in 2017. Outbreak reports were produced in respect of outbreaks of infection by the Infection Prevention and Control Team and presented at the HCAI Committee meetings and circulated to clinical area managers at the hospital.

Surveillance data reviewed by inspectors showed that a high number of patients admitted at the hospital were diagnosed with influenza infection in January and February 2018. Inspectors were informed that rapid diagnosis was facilitated in the Emergency Department by the use of diagnostic technology equipment, purchased by the hospital since September 2017.

It is recommended that healthcare 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 healthcare workers. A review of influenza vaccine uptake figures by the HSE for 2017-2018¹⁵ found that 32.5% of staff at the hospital had obtained the seasonal influenza vaccine by December 2017. The hospital should continue to promote healthcare worker uptake of seasonal influenza vaccine at the hospital.

Hand hygiene

The infection prevention and control service monitored the following:

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

The hospital participated in national hand hygiene audits, the results of which are published twice a year. The hospital achieved 94% compliance rate in the national hand hygiene audit in October 2017 which is above the current required compliance target of 90% set by the HSE. A hospital-wide hand hygiene compliance audit reviewed by inspectors showed that the hospital achieved between 90 to 91%

compliance with hand hygiene from January to March 2018. Local hand hygiene compliance audits were undertaken across the hospital on a regular basis. The Infection Prevention and Control Team had devised an action plan for clinical areas to be implemented when audit results were less than 90% which included staff education and re-audit of practice. Monthly hand hygiene audits in the clinical areas inspected showed that staff achieved 100% with hand hygiene compliance in March 2018.

Alcohol hand gel was available at the point of care in the clinical areas inspected as recommended. An ongoing sink replacement project was in place at the hospital. The design of clinical hand wash sinks in some clinical areas did not conform to Health Building Note 00-10 Part C: Sanitary assemblies.¹⁶ The hospital had implemented a 'Bare Below Elbow'^{***} policy and signage was observed in clinical areas inspected.

On the day of inspection, a water tap labelled as drinking water was located above a clinical hand wash sink in a five-bedded room in one clinical area inspected. An infection prevention and control risk-based approach should be undertaken to ensure the location of this outlet is appropriate from an infection control perspective.

Patient environment

Treatment of patients in close proximity to each other increases the risk of spread of many infections including those caused by multidrug-resistant organisms. Bed spacing in six-bedded rooms in the surgical ward inspected was severely restricted in that there was limited space for patients to sit out or for staff to circulate or manoeuvre patients or equipment.^{17,18} As a result access to the hand hygiene sinks in the shared rooms were obstructed by patient beds. HIQA was informed that this has been a longstanding issue over a number of years, and had been placed on the hospital's risk register. However, there were no plans or agreed timeframe for this issue to be addressed. None of the six-bedded rooms had en-suite toilet and shower facilities. There were three designated patient toilets on the main corridor which it was reported was not sufficient to comfortably meet patients' needs.

Surfaces and flooring were damaged and poorly maintained in the clinical room in the surgical ward and as such did not facilitate effective cleaning and likely facilitated the production and accumulation of dust. There was exposed pipe work in this room which did not facilitate cleaning. However despite infrastructural deficiencies the surgical ward was generally clean. A hygiene audit report reviewed by inspectors showed that the ward achieved 84% compliance with desirable environmental hygiene standards in January 2018. The ward should continue to

^{***} Bare Below Elbow is an initiative aiming to improve hand hygiene performed by health care workers as the effectiveness of hand hygiene is improved when: skin is intact, nails are natural, short and unvarnished; hands and forearms are free of jewellery (one plain finger band allowed); and sleeves are above the elbow.

work towards achieving compliance well above the baseline target of good performance set at 85%.

Likewise the configuration and design of the medical wards inspected, both male and female, were dated and did not meet desirable standards of a modern patient care facility. The wards were not self-contained and were located on either ends of a corridor with dedicated nurse managers assigned to each ward. The corridor was used as a main thoroughfare for staff from adjacent departments which was less than ideal. The female medical ward comprised five single rooms whereas the male medical ward had only one single room, all with en-suite facilities. Limited space between beds in five-bedded rooms was also observed. In contrast to the surgical ward all rooms had en-suite toilet/shower facilities with an additional hand hygiene sink for staff.

On the day of inspection three patients required transmission-based precautions and were appropriately allocated in single rooms on the medical wards. Colour-coded signage to communicate isolation precautions was in place and doors to all rooms were kept closed at the time of inspection. Personal protective equipment supplies were available outside isolation rooms including masks where appropriate. Overall the patient environment appeared clean with few exceptions. A clinical room shared between two medical wards was less than ideal and furthermore access to the hand hygiene sink was restricted in this area.

Trended hospital hygiene audit results reviewed by inspectors showed that the medical wards achieved a combined result of 89% compliance for environmental hygiene in February 2018. A quality improvement plan reviewed by inspectors showed that actions had been taken to address deficiencies identified. In light of the fact that both medical wards were managed separately the practice of combining audit results should be reviewed so that supervisory and responsibility arrangements in relation to findings are facilitated.

Patient equipment

Patient equipment in the surgical ward had not been cleaned in line with national infection control standards. For example, red staining was visible on the surface of five integrated sharps trays in the clinical room, indicating that they had not been decontaminated after use. This practice significantly increases the risk of transmission of infection including blood-borne viruses.¹⁹

Red staining was also observed on a blood glucose monitor holder. This indicated that blood glucose monitors and their holders which contained supplies of finger stick blood sampling devices were brought to the patient bedside when taking blood samples for monitoring the patient's blood sugar. This practice is not in line with best practice as it unnecessarily increases the risk of equipment contamination. It is

recommended that only the equipment required for a single procedure on an individual patient should be brought to a patient bedside.

HIQA was informed that local hygiene audits, which included equipment hygiene audits were carried out by a multidisciplinary audit team on a weekly basis. The surgical ward achieved 82% compliance in a patient equipment audit in January 2018. The national cleaning audit tool requires a score of 85% or more to achieve the required level of compliance which demonstrates the importance placed on controlling infection within healthcare environments. There was no evidence that the team re-audited patient equipment following the low compliance rating achieved.

Notwithstanding that staff reported that patient equipment was cleaned after use opportunities for improvement were also observed in relation to periodic cleaning and management of patient equipment in the medical wards inspected. Stains, and or dust was noticed on a number of items of patient equipment including under surfaces of some commodes and armchairs. Some stains was observed on blood-pressure cuffs and a number of used disposable blood pressure cuffs were observed on blood pressure monitors; these cuffs should be dedicated single patient use and disposed of after use. Blood pressure cuffs have been associated with potential sources of cross contamination.²⁰

Hygiene audit results reviewed by inspectors showed that the medical wards achieved a combined result of 93% and 84% compliance respectively for patient equipment hygiene in August and November 2017. The inspector found a lack of awareness in relation to audit results for patient equipment at a local level. Trended hospital hygiene audit results reviewed by inspectors showed that the medical wards inspected achieved a combined result of 92% compliance for patient equipment hygiene in February 2018.

The hospital had devised a cleaning schedule and checklist for patient equipment in individual clinical areas in line with national guidelines.^{21,22} All elements of patient equipment that required cleaning, in addition to the frequency of cleaning were detailed. However the responsible person and cleaning methods were not clearly defined. Inspectors were informed that daily cleaning checklists for patient equipment were not consistently completed due to deficiencies in respect of allocated cleaning resources for patient equipment. It was highlighted to inspectors that staff responsible for cleaning patient equipment were not regularly allocated time to perform routine cleaning due to competing demands such as the need to assist nursing staff with patient care needs. Minutes of the HCAI Committee meeting held in August 2017 reviewed by inspectors showed that patient equipment hygiene was highlighted as a concern. It was observed at the time of the inspection that a green tagging system which alerted staff to when the equipment was last cleaned was inconsistently applied.

Staff responsible for cleaning should have the right level of training, appropriate equipment, allocated time, know what needs to be cleaned and how often and be properly supervised. Minimum cleaning frequencies in relation to patient equipment should be aligned with recommended national minimum cleaning frequencies. Going forward, it is recommended that a particular focus is placed upon managerial oversight of cleaning performance, and that adequate resources are provided to ensure that patient equipment cleaning specifications are fully implemented.

There was lack of storage space on all clinical areas inspected with inappropriate storage of patient equipment and supplies resulting in clutter. For example, in the surgical ward inspectors observed three intravenous stands, which were labelled as being cleaned, stored within a 'dirty'^{§§§} utility room. Patient equipment was also stored on ward corridors. Likewise inappropriate storage of patient equipment was observed on the male medical ward for instance an unclean commode and staff personal belongings were stored in a patient equipment storage room. This room was also shared between the two medical wards. It is recommended that patient equipment that is not in use is stored in a designated store room.

The medical wards inspected did not have a dedicated room for the storage and management of cleaning equipment. Consequently floor cleaning products were reconstituted and discarded in a janitorial sink in a 'dirty' utility room which is inappropriate. In addition, floor mop buckets and holders were stored in this room. The inspector was informed that ward cleaning trolleys were cleaned and stored in a central location at the hospital which was also used as a staff locker room. Ideally, hospital wards should have a designated cleaner's room equipped with a janitorial sink, handwashing facilities and space for cleaning equipment.

^{§§§} 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.

2.5 Prevention of invasive aspergillosis during construction work

Deficiencies were identified during the inspection relating to aspergillus control measures during renovation works in progress on the surgical ward. Inspectors viewed the work permit specific to this project and although these documents indicated that dust control measures were required they were not implemented in line with national guidelines.²³

Poor adherence to *Aspergillus* control measures was observed on the surgical ward during the inspection as follows;

- Dust and debris was visible on a carpet outside the renovation works.
- Construction personnel were observed vacuuming this area with a vacuum segregated for use in the Intensive Care Unit.
- Education of all relevant personnel and the provision of patient information leaflets had not been implemented in line with the national guidelines.
- Aspergillus control measures were monitored by the Infection Prevention and Control Team but were not documented.

Notwithstanding the measures implemented, HIQA found a more comprehensive systematic approach to *Aspergillus* control within the hospital was required. Better oversight and monitoring of compliance with control measures is needed which should include regular review of risks associated with construction on an on-going basis. Records of relevant training, communication and monitoring of control measures should be kept and patient education and information leaflets should be provided at ward level. Due to their close proximity to the renovations, air sampling of the Intensive Care Unit and the Special Care Baby Unit should be considered to identify if there has been ingress of *Aspergillus* spp.

These risks were brought to the attention of the hospital management team during the inspection.

3.0 Conclusion

It was apparent that the Midland Regional Hospital Portlaoise had actively endeavoured to strengthen governance and operational arrangements since the last inspection to support the prevention and control of healthcare-associated infection at the hospital. Notwithstanding this inspectors found that the hospital was not fully aligned to the current hospital group governance structure due to legacy regional hospital group arrangements.

Inspectors found that the Midland Regional Hospital Portlaoise had not successfully ensured that screening patients for CPE was fully embedded in the hospital. In light of the current national public health emergency, HIQA considered this to be a high risk that required escalation to hospital management following this inspection. Hospital management responded highlighting key actions which the hospital has instigated to address this risk. It is acknowledged that the hospital had identified this issue as an area of concern prior to this inspection. The General Manager provided assurances to HIQA that the hospital was actively managing this risk to mitigate any possible impacts on patients in the interim of additional resources required to support the full implementation of CPE screening guidelines. It is imperative that the hospital is fully supported both at group and national level in their endeavours to mitigate this risk.

The hospital had systems in place to identify and manage risk in relation to the prevention and control of healthcare-associated infections and had appointed a key position at the hospital to facilitate risk management. Some risks identified by the hospital in relation to infrastructure and lack of isolation facilities which impeded effective infection prevention and control as they exist cannot be sufficiently mitigated at a local hospital management level. It is recommended that the hospital continues to assess and manage the impact of these risks in relation to the infection prevention and control programme and escalate accordingly. All future refurbishment of existing in-patient accommodation should be planned to reduce the number of patients per room and to install en-suite facilities in each room, in line with the recommendations in the infection prevention and control building guidelines for acute hospitals in Ireland.

The consultant microbiologist provided cover to three acute hospitals over two hospital groups including 24-hour seven-days-a-week clinical advice. The challenge associated with ensuring sustainability of this service had been highlighted in a previous HIQA inspection in 2012. It is acknowledged that the hospital had escalated this issue to the hospital group; the hospital group should review this arrangement to be assured that the necessary resources are in place going forward to deliver a sustainable service.

The hospital monitored healthcare-associated infection key performance indicators and outcome measures which with additional resources could be further expanded to facilitate wider evaluation of the impact of infection prevention and control measures across the hospital. Targeted surgical site infection surveillance in relation to caesarean section surgery was undertaken as part of an ongoing quality improvement plan in maternity services at the hospital. The hospital should continue to benchmark this surveillance data both nationally and internationally to ensure comparability with defined benchmarks. The hospital had a well-structured antimicrobial stewardship programme in place.

Hospital staff were supported to implement best practice in relation to infection prevention and control with up-to-date policies, procedures and guidelines. Care bundles were implemented and the hospital needs to continue to ensure full compliance with all the essential evidenced-based care bundle components. The hospital achieved 94% compliance rate in the national hand hygiene audit in October 2017 which is well above the current required compliance target set by the HSE which is commendable. HIQA found that a more comprehensive systematic approach to *Aspergillus* controls during building or renovation works at the hospital was required.

Overall the patient environment inspected was generally clean with few exceptions and there was good ownership in relation to environmental cleaning in the areas inspected. However opportunities for improvement were identified in relation to the management and storage of patient equipment. Appropriate decontamination of patient equipment is fundamental to reducing their potential contribution to healthcare-associated infection therefore clinical areas should have the necessary resources required to ensure that patient equipment is cleaned in line with minimum cleaning frequencies for the risk profile of each area.

In conclusion HIQA found that governance and management arrangements had improved relative to the findings of the previous HIQA inspection in 2012. The Infection Prevention and Control Team had put in place many elements of an infection prevention and control programme however needs to be fully supported to ensure full implementation of the National Standards. The hospital should continue to strive to ensure sustained compliance with desirable environmental and patient equipment best practice hygiene standards. Moreover infrastructural deficiencies that contribute to the risk of transmission of infection needs to be substantively reviewed and addressed going forward.

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5.0 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*

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

Appendix 2: Copy of the letter issued to the Midland Regional Hospital Portlaoise regarding the high risk identified during HIQA's inspection at the Midland Regional Hospital Portlaoise



Michael Knowles
General Manager
Midland Regional Hospital Portlaoise
Portlaoise
Co Laoise

Michael.knowles@hse.ie

13 April 2018

Ref: PCHCAI 2018/23

Dear Michael

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

The Health Information and Quality Authority (HIQA) carried out an unannounced inspection at the Midland Regional Hospital Portlaoise against the National Standards for the prevention and control of healthcare-associated infections in acute healthcare services on 11 April 2018.

On review of the inspection findings, inspectors identified that the hospital is not in compliance with the Health Service Executive guideline around screening patients for Carbapenemase Producing *Enterobacteriaceae*^{*} (CPE). We consider this to be a high risk in light of the ongoing National Public Health Emergency Plan to address CPE in our health system which was activated by the Minister for Health on 25 October 2017.

^{*}Health Service Executive. Requirements for Screening of Patients for Carbapenemase-Producing *Enterobacteriales* (CPE) in the Acute Hospital Sector February 2018. Available online from: http://www.hpsc.ie/az/microbiologyantimicrobialresistance/strategyforthecontrolofantimicrobialresistanceinireland/sari/carbapenemresistantenterobacteriaceae/cre/guidanceandpublications/Requirement%20for%20screening%20of%20patients%20for%20CPE%2016Feb18_Final.pdf

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Please outline how the hospital intends to address this high risk following this inspection. Details of the risk identified, and proposed mitigating actions will be included in the report of this inspection.

Please provide this information to HIQA by 2pm on **20 April 2018** to qualityandsafety@hiqa.ie. Should you have any queries, please do not hesitate to contact me at qualityandsafety@hiqa.ie.

Yours sincerely,



Noreen Flannelly-Kinsella
Authorised Person

CC: Mary Dunnion, Director of Regulation, Health Information and Quality Authority
Trevor O' Callaghan CEO, Dublin Midland Hospital Group
Liam Woods, National Director of Acute Services, Health Service Executive

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Appendix 3: Copy of the response letter received from the Midland Regional Hospital Portlaoise regarding the high risk identified during the HIQA inspection of the Midland Regional Hospital Portlaoise



Health Service Executive,
Baile Átha Cliath & Lár Laighin,
Dublin Mid-Leinster,
Midland Regional Hospital at Portlaoise,
Co. Laois.

Telephone (057) 8621364
Fax (057) 8622986

20th April 2018

REF: PCHCAI 2018/ 23 **National Standards for the prevention and control of healthcare-associated infections in acute healthcare services - monitoring programme**

Dear Ms. Flannelly-Kinsella,

I refer to your letter dated 13th April, 2018 in respect of the above matter and wish to confirm that the hospital will implement the required CPE changes as indicated in the recently updated CPE guideline.

The hospital has identified the cohort of patients who will require screening in addition to the numbers currently being screened for CPE, to include re admissions from the Midland Regional Hospital or from another hospital within the past 12 months. This increase is expected to be in the region of 6-8% of admitted patients.

The challenges identified to comply with the National Guideline are as follows:

- 1) Capacity of the analyser to provides service for CPE & Flu swabs plus other microroganisms
- 2) Additional Laboratory staffing requirements including on call
- 3) Availability of information relating to previous admission in other hospital

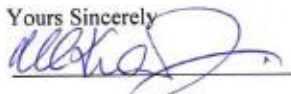
The hospital will begin an education program to raise awareness around the hospitals responsibility to comply with the most recent CPE guidelines. It is envisaged that this program will be implemented by May 15th 2018.

A business case is being submitted to the Dublin Midlands Hospital Group to seek funding to support the additional costs associated with the implementation of this guideline.

The hospital will monitor the increased volume of additional screening over the coming months to address any deficits arising from the implementation of this guideline.

Should you require any further information, please do not hesitate to contact me.

Yours Sincerely



Michael Knowles

General Manager

Cc: Mary Dunning, Director of Regulation, Health Information and Quality Authority

Trevor O'Callaghan, CEO, Dublin Midlands Hospital Group

Liam Woods, National Director of Acute Services

For further information please contact:

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