



**Health  
Information  
and Quality  
Authority**

An tÚdarás Um Fhaisnéis  
agus Cáilíocht Sláinte

# **Report of the unannounced inspection at St. Vincent's University 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: 26 February 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*<sup>1</sup> in public acute hospitals in Ireland to determine if hospitals have effective arrangements in place to protect patients from acquiring healthcare-associated infection. The *National Standards for the prevention and control of healthcare-associated infections in acute healthcare services* will be referred to as the National Standards in this report.

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

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

### Phase One

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

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

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

### Phase Two

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

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

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)<sup>†</sup> 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*<sup>2</sup> which was published in May 2017 and is available on HIQA's website: [www.hiqa.ie](http://www.hiqa.ie)

### **Phase Three**

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

### **Information about this inspection**

This inspection report was completed following an unannounced inspection carried out at St. Vincent's University Hospital by Authorised Persons from HIQA; Noreen Flannelly-Kinsella, Kathryn Hanly, Kay Sugrue and John Tuffy. The inspection was carried out on 26 February 2018 between 10:15hrs and 17:00hrs.

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 environment in a small sample of clinical areas which included:

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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/>

<sup>†</sup>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.

- the National Liver Unit
- a medical ward.

Inspectors also visited two additional clinical areas to assess if the national screening guidelines in relation to CPE were fully implemented which included:

- the Intensive Care Unit
- a day 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.



## 2.0 Findings at St. Vincent's University Hospital

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

- section 2.1 outlines the risk identified during this inspection
- section 2.2 to 2.7 present the general findings of this inspection which are aligned to monitoring lines of enquiry.

### 2.1 Risk identified during this unannounced inspection

During an unannounced inspection, a risk was identified whereby the hospital had not ensured the full and reliable implementation of the national screening guidelines<sup>3</sup> in relation to 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<sup>†</sup> for CPE is considered an essential infection prevention and control strategy.

On the day of inspection, HIQA was informed that the hospital had identified this issue as an area of concern and had sought assistance at both hospital group and national level to deal with this risk.

#### **Risk escalation by HIQA, and reciprocal response by the hospital group**

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 St. Vincent's University Hospital.

In response, the Chief Executive Officer at the hospital outlined key actions implemented by the hospital to mitigate the risk identified by HIQA. Specifically these key actions included escalation of this risk to the:

- Infection Prevention and Control Committee at the hospital
- Quality and Patient Safety Executive Committee at the hospital
- Ireland East Hospital Group Healthcare-Associated Infection Committee
- Ireland East Hospital Group
- Health Service Executive.

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<sup>†</sup>Performing active surveillance cultures, active screening tests or contact screening of at-risk patients to detect colonisation with Carbapenemase Producing *Enterobacteriaceae*.

Additional key actions implemented by the hospital included:

- submission of a business case to the Ireland East Hospital Group for the appointment of an additional microbiology laboratory scientist
- reorganisation of work flows and staff deployment in order to accommodate the increase in CPE screening samples
- identification and targeting of available resources to screen high-risk patient population
- identification and antimicrobial susceptibility testing on *Enterobacterales* from in-patient clinical samples to ensure any CPE isolates were detected
- identification of patients from long-term care facilities and hospitals known to have an ongoing CPE outbreak and screening appropriately.

The hospital management team reported that additional challenges were posed by dated infrastructure and lack of toilet facilities in a central ward block at the hospital resulting in a large number of CPE contact patients requiring screening.

A copy of the letter issued to the Chief Executive Officer of St. Vincent's University Hospital to seek further assurance regarding the risk identified and a copy of the response received from the Chief Executive Officer of St. Vincent's University Hospital are shown in Appendices 2 and 3 respectively.

## 2.2 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

St. Vincent's University Hospital is a voluntary public acute hospital which is both a university teaching and tertiary referral hospital. The hospital is a member of the Ireland East Hospital Group.<sup>§</sup>

The Chief Executive Officer (CEO) at St. Vincent's University Hospital held overall accountability and responsibility for the prevention and control of healthcare-associated infection at the hospital. The CEO reported to the Ireland East Hospital Group Chief Executive Officer at monthly hospital group performance meetings. In addition, the CEO also reported to the Board of Directors of St. Vincent's Healthcare Group.<sup>\*\*</sup>

Inspectors found that there were clear lines of accountability and responsibility in relation to governance and management arrangements for the prevention and control of healthcare-associated infection at St. Vincent's University 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 into the Quality and Patient Safety Executive Committee on a monthly basis.

The Quality and Patient Safety Executive Committee, chaired by the CEO included infection prevention and control as a standing agenda item. This committee in turn reported to the Executive Management Team at the hospital.

### 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

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<sup>§</sup> 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 of Limerick Hospitals Group. 6. RCSI Hospitals Group. 7. National Children's Hospital Group.

<sup>\*\*</sup> St. Vincent's Healthcare Group includes St. Vincent's University Hospital, St. Vincent's Private Hospital and St. Michael's Hospital, Dun Laoghaire.

National Standards. The aim of the team was to monitor and advise on implementation of the infection prevention and control programme at the hospital and to perform surveillance of alert organisms and deliver education to all grades of staff.

The Infection Prevention and Control Team was led by a consultant microbiologist. The team held weekly meetings which were minuted. Additionally, the team undertook twice daily ward rounds and advised all departments on the prevention and control of infection. The Consultant Microbiologist undertook daily rounds in the Intensive Care Unit. The team liaised with bed management and provided expert advice to hospital committees such as nursing and medical executive teams, and hospital groups including hygiene quality improvement and procurement and estates strategy group. Advice was also provided by the team before and during refurbishment and building projects at the 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 lead Consultant Microbiologist had a joint whole-time equivalent (WTE)<sup>††</sup> appointment with St. Columcille's Hospital with a 32 hour commitment to St. Vincent's University Hospital. The microbiology service provided 24-hour a day, seven-days-a-week access to expert advice by a consultant microbiologist in line with National Standards. This service was provided on a rotational basis by six consultant microbiologists (total 3.2 WTE), all based at St. Vincent's University Hospital. The Microbiology Department at the hospital was accredited by the Irish National Accreditation Board in line with National Standards.

The Infection Prevention and Control Team also comprised:

- 6.0 WTE infection prevention and control clinical nurse specialists which included an assistant-director of nursing position
- 1.0 WTE antimicrobial pharmacist
- 0.8 WTE surveillance scientist
- 1.0 WTE administration support.

The Infection Prevention and Control Team was also supported by two registrars and one specialist registrar in microbiology.

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

## **The Infection Prevention and Control Committee**

The Infection Prevention and Control Committee co-ordinated, directed, supported and provided oversight of the implementation of the infection prevention and control programme at St. Vincent's University Hospital.

The committee was chaired by the hospital's Chief Operating Officer and membership included multidisciplinary and executive management team representation. This included representatives from the Infection Prevention and Control Team, microbiology, nursing and medical executives, quality and patient safety, bed management, facilities, technical services, occupational health, allied health professionals, catering, and the purchasing department. A specialist in Public Health Medicine attended as required.

The committee had defined terms of reference and met quarterly. The documentation reviewed showed that meetings followed a standardised agenda which included feedback and consideration of the infection prevention and control programme at the hospital. Minutes of meetings reviewed by inspectors showed that attendance at meetings was good across all disciplines. The reporting structure organisational diagram for infection prevention and control provided to HIOA also indicated formal lines of communication between the Infection Prevention and Control Committee and the Antimicrobial Stewardship Committee, Environmental Monitoring Committee, Decontamination Committee and the hospital Hygiene Quality Improvement Group.

The Ireland East Hospital Group recently convened a committee in relation to healthcare-associated infection and antimicrobial-resistance which was attended by infection prevention and control representatives from St. Vincent's University Hospital and other hospitals across the group. The meetings were attended by the HSE National Lead for Healthcare-Associated Infection and Antimicrobial-Resistance and was chaired by the Chief Executive Officer of the hospital group. This is an important development as it facilitates greater oversight in relation to infection prevention and control at a hospital group level.

### **Monitoring and evaluation**

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 prior to this inspection showed that the rate of new cases of hospital-acquired *Staphylococcus aureus* bloodstream infection at the hospital was in line with the national HSE performance indicator in September 2017. The Infection Prevention and Control Team performed detailed analysis of new cases of *Staphylococcus aureus* bloodstream infection and *Clostridium difficile* infection at the hospital. Surveillance data in relation to *Clostridium difficile* infection will be presented in section 2.7.1 in this report.

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
- median hospital total antibiotic consumption.

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 surveillance of the following:

- enhanced 'alert'<sup>††</sup> organisms and 'alert' conditions<sup>§§</sup>
- clusters or outbreaks of infection
- bloodstream infections.

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.

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.<sup>\*\*\*</sup>

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<sup>††</sup> Alert organisms are micro-organisms that pose a significant risk of transmission to non-infected patients or healthcare workers.

<sup>§§</sup> Alert conditions include physical symptoms such as skin rashes, vomiting, diarrhoea, respiratory illness that could be due to an infectious illness.

<sup>\*\*\*</sup> 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).

The hospital monitored six local hospital key performance indicators in relation to infection prevention and control which were reported monthly to hospital management. These included the following:

- new cases of hospital-acquired methicillin-resistant *Staphylococcus aureus* (MRSA)
- new cases of hospital-acquired *Clostridium difficile* infection
- new cases of hospital-acquired Vancomycin-resistant *enterococci* (VRE)
- new cases of hospital-acquired *Carbapenem-resistant enterobacteriaceae*
- *Staphylococcus aureus* catheter-related bloodstream infection
- patients not isolated within 24 hours.

An expanded set of 21 local hospital key performance indicators were reported quarterly to the Quality and Patient Safety Executive and the Infection Prevention and Control Committee and included some additional indicators such as:

- hand hygiene compliance
- new cases of *Staphylococcus aureus* bloodstream infection
- new cases of VRE bloodstream infection
- new cases of peripheral vascular catheter-related *Staphylococcus aureus* bloodstream infection
- new cases of catheter-related bloodstream infection in haemodialysis
- rate of intensive care unit-acquired catheter-related bloodstream infection
- rate of ventilator-acquired pneumonia in the intensive care unit
- rate of acquisition of new cases of MRSA, *Clostridium difficile*, VRE, CPE, and non-CPE CRE<sup>†††</sup>
- rate of acquisition of new cases of Extended Spectrum Beta Lactamase-producing bacterial infection.

Surveillance data was tracked and trended and information was used to identify and address any deficiencies. Surveillance in relation to catheter-related blood stream infection and multidrug-resistant organisms will be presented in section 2.6 and 2.7 respectively in this report.

Inclusion of multiple outcome measures enables a more comprehensive evaluation of the effectiveness of infection prevention and control practices.

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<sup>†††</sup> Non-CPE CRE refers to bacteria in the family of Enterobacteriaceae that are resistant to carbapenem antibiotics.

The team conducted annual to twice yearly validity audits in clinical areas in relation to many components of an infection prevention and control programme which included:

- point of care diagnostic devices including glucometers, urinalysis machines and blood gas analysers
- sharps management
- infection prevention and control practices
- personal protective equipment
- alcohol hand rub at point of care
- 'dirty'<sup>+++</sup> utility room
- waste management.

Performance data in relation to the above parameters was presented in an overall hospital-wide report for 2017. The report clearly identified compliance results achieved and clinical areas where improvement was required across the hospital. Audit reports also included recommendations for improvement in practice which is good practice.

Findings in regard to hand hygiene, hospital hygiene audits, antimicrobial stewardship will be presented in section 2.7 in this report.

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<sup>+++</sup> 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.



## 2.3 Risk management

### Line of enquiry

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

Risks in relation to the prevention and control of infection should be identified and effectively mitigated or managed. St. Vincent's University Hospital had systems in place to identify and manage risk in relation to the prevention and control of healthcare-associated infections.

A comprehensive infection prevention and control risk register was developed by the Infection Prevention and Control Team in consultation with senior hospital management, the Quality and Patient Safety Executive Committee and the Infection Prevention and Control Committee and was reviewed regularly. The register was last updated in February 2018 and high rated risks included the following:

- insufficient toilet facilities, single en-suite rooms and clean utility rooms
- lack of airborne isolation rooms in the emergency department (ED)
- infection outbreaks
- surveillance scientist staffing
- consultant microbiology and laboratory scientist staffing
- insufficient equipment for molecular testing<sup>§§§</sup>
- shortage of antimicrobial agents
- non-communication of infection status inter-departmental or intra-departmental
- lack of staff education in infection prevention and control.

The risk in respect of non-adherence with full implementation of CPE screening guidelines did not appear to have been included on the risk register.

Healthcare-associated infection incidents and risks at a local level were formally reported on the hospital's 'risk management occurrence form' and escalated through reporting structures to the Quality and Patient Safety Executive Committee and Executive Management Team. Significant risks were escalated to the Clinical Incident Review Group, and the Risk, Quality and Safety Sub-Committee of the Board and ultimately to the Board of Directors. Significant risks that could not be effectively mitigated at a local hospital level were also escalated to the Ireland East Hospital Group level through directorate reporting structures.

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<sup>§§§</sup> Technology to assist with rapid microbiological testing, diagnoses and management of infectious diseases.

Infection prevention and control risk occurrences were collated and presented by the Infection Prevention and Control Team in an infection prevention and control department report in 2017. The report showed that 43% of the total number of infection prevention and control risk occurrences reported related to communication issues, such as infection status not communicated. A further 24% of risk occurrences were in relation to bed management issues such as lack of isolation beds. Recording of such incidents and risks is good practice as this information can be used to identify opportunities for improvement.

Infection prevention and control risks were escalated to hospital management and entered on the corporate risk register<sup>\*\*\*\*</sup> as an overarching infection prevention and control risk which incorporated poor hospital infrastructure, lack of en-suite and toilet facilities. To address significant risks identified, a number of control measures to mitigate or manage risks had been implemented.

It was reported to inspectors that the hospital had not received formal communication relating to the changes to national CPE screening guidelines which came into effect on 01 March 2018. In light of the National Public Health Emergency in relation to CPE this needs to be addressed at a national level.

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

## 2.4 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 suite of up-to-date infection prevention and control policies in relation to standard precautions, transmission-based precautions, multidrug-resistant organisms, outbreak management and antimicrobial prescribing. Hospital policies relevant to infection prevention and control were developed by the Infection Prevention and Control Team and approved by the Executive Management Team and the Medical Council at the hospital. Infection prevention and control policies were most recently revised in 2016.

The hospital had an electronic document management system to facilitate document version control. Inspectors found that these documents were accessible to staff in both hard and electronic copies in clinical areas inspected.

## 2.5 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 was mandatory for all relevant hospital staff at induction and refresher training was provided thereafter. Content included education and training in relation to standard and transmission-based precautions. Mandatory education and training uptake was a standing agenda item at monthly Quality and Patient Safety Executive Committee meetings at the hospital which facilitates oversight of education and training by staff at hospital management level.

The hospital had implemented a number of different measures to promote education and training of clinical staff which demonstrated a commitment to promoting safer patient care. Documentation reviewed by inspectors, and verified by staff indicated that training and education was also provided in response to identified training needs, outbreaks of infection and hospital building projects. Informal education sessions and hands-on training was provided to staff working in clinical areas in relation to standard precautions, transmission-based precautions, healthcare-associated infections and environment and patient care equipment cleaning.

Staff were given the opportunity to train as local infection prevention and control link nurses to improve the delivery of safe and effective infection prevention and control practices in their own setting. Members of the Infection Prevention and Control Team also taught at a wide variety of courses, study days and post-graduate events for medical, nursing and other healthcare disciplines.

The team had devised an eLearning programme in relation to infection prevention and control which was due to be finalised shortly. The hospital should ensure that training in relation to infection prevention and control is aligned to the national framework for such knowledge and skills.<sup>4</sup>

A competency-based training programme for nursing staff was provided in relation to intravenous cannulation upon commencement of their employment at the hospital. Infection prevention and control education was also provided to non-

consultant hospital doctors at induction and at 'grand rounds'.<sup>†††</sup> The Consultant Microbiologist provided training to all new consultants at induction.

The microbiology medical team delivered education and training in relation to antimicrobial stewardship including antimicrobial prescribing and management of infections to relevant clinical staff. Education in relation to antimicrobial stewardship was also provided at pharmacy and microbiology meetings, and medical and surgical 'grand rounds'. All staff at the hospital had access to advice from the Infection Prevention and Control Team, including an antimicrobial pharmacist and consultant microbiologist.

Hard copies of patient information leaflets in relation to infection prevention and control including CPE were available for patients on wards at the hospital.

In addition, training workshops were provided for staff with responsibility for patient equipment cleaning at the hospital.

### **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.<sup>5</sup> Inspectors were informed that hand hygiene training was mandatory for staff at induction and every year thereafter at St. Vincent's University Hospital. Hand hygiene education sessions were held regularly throughout the year supplemented with ward-based training sessions.

At the time of the inspection, 77% of hospital staff had attended hand hygiene training in the previous year. Staff attendance at training was recorded using an electronic system which facilitated central tracking and trending of attendance by each staff discipline.

Documentation viewed by inspectors showed that 100% of staff in the medical ward inspected and the majority of staff in the National Liver Unit had completed this training in the previous year.

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<sup>†††</sup> Grand rounds are formal meetings where physicians and other clinical support and administrative staff discuss the clinical case of one or more patients. Grand rounds originated as part of medical training.

## 2.6 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.<sup>6,7,8</sup> National guidelines recommend healthcare-associated infection surveillance in relation to surgical site infection, central venous access device-related infection, urinary catheter-associated urinary tract infection and ventilator-associated pneumonia.<sup>9,10,11</sup>

There was a planned and organised surveillance programme of invasive device-related infection, ventilator-associated pneumonia and surgical site infection at St. Vincent's University Hospital which is good practice. Inspectors were informed that plans to commence urinary catheter-associated urinary tract infection surveillance in targeted areas identified in a recent national point prevalence survey were underway.

Surveillance of catheter-related bloodstream infections in the Haemodialysis Unit and Intensive Care Unit (ICU), and peripheral venous catheter-related bloodstream infections were routinely performed at the hospital. Surveillance data reviewed showed that ICU-acquired catheter-related blood stream infection rates were above the hospital performance indicator for quarter 3 and 4 in 2017. Initiatives implemented to date in the ICU have not yet succeeded in lowering catheter-related bloodstream infection rates over this period. The hospital had identified the increased rate of bloodstream infections in the ICU as a concern and plans to intensify its approach to mitigating this risk. Quality improvement measures already introduced included targeted education sessions and the introduction of antimicrobial dressings for invasive devices. In addition, it is planned to audit insertion techniques going forward.

The team told inspectors that they had successfully addressed an area for improvement identified through surveillance by reducing the rate of cases of catheter-related blood stream infection among patients undergoing haemodialysis by implementing similar evidenced-based initiatives such as the introduction of antimicrobial dressings. Surveillance data reports reviewed by inspectors showed that these infection rates were in line with the hospital's performance indicator for the same period.

Root cause analysis was performed in all cases of *Staphylococcus aureus* and VRE catheter-related bloodstream infection to identify contributing factors and areas for improvement. Such analysis is important from a learning perspective. Surveillance reports also provided recommendations for improvement in practice in relation to catheter-related bloodstream infection, peripheral-vascular catheter-related bloodstream infection, ventilator-associated pneumonia and surgical site infection which is representative of good practice.

Surgical site infection is associated with increased morbidity and mortality therefore surgical site infection surveillance is an important patient safety and quality assurance initiative. It demonstrates a commitment to monitoring the quality of patient care.

Targeted surgical site infection surveillance in relation to breast, gynaecology, liver transplant, ophthalmology and orthopaedic surgery was undertaken by the Infection Prevention and Control Team. Additionally surveillance of surgical site infection for simultaneous pancreas-kidney transplant surgery was introduced in 2017.

Quarterly reports reviewed by inspectors showed that data was benchmarked and compared with the National Healthcare Safety Network, Centres for Disease Control and Prevention, USA.<sup>12</sup> Data was presented in a meaningful way, clear and easy to interpret with gridlines showing year-on-year results. Benchmarking of data is important to ensure comparability with international data. Surveillance data for 2017 showed some variation in relation to infection rates for some surgical procedures which were higher than hospital and international defined benchmarks. Audit reports included recommendations for improvement in practice. The hospital should ensure that these recommendations are embedded into practice. Surgical site surveillance data specific to each consultant was shared with individual consultants and anonymised data was shared with relevant departments.

The hospital had a policy in relation to the prevention of surgical site infection in line with best practice guidelines.<sup>13,14,15,16</sup> In addition guidelines were available for surgical antimicrobial prophylaxis.

### **Care bundles**

The implementation of care bundles<sup>+++</sup> to prevent invasive device-related infection was reviewed in both clinical areas inspected.

Peripheral vascular catheter care bundles had been implemented at St. Vincent's University Hospital and monthly audits of peripheral vascular device management were performed as part of Nursing and Midwifery HSE Quality Care Metrics. However

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<sup>+++</sup> A bundle is a small, straightforward set of evidence-based practices that, when performed collectively and reliably, have been proven to improve patient outcomes.

nursing metrics included limited data in relation to all essential components of invasive device management and does not provide assurances that all components of care bundles are consistently applied each day. Such assurances are important as full implementation of all evidenced-based components of care bundles have shown improved patient outcomes.

Additional validity peripheral vascular catheter inspection audits were undertaken by the Infection Prevention and Control Team across all clinical areas at the hospital. An annual report reviewed by inspectors showed that 100% of 968 peripheral vascular catheter sites reviewed across the hospital showed no sign of infection or extravasation at the time of audit in 2017. Audit findings were provided to each clinical area and inspectors noted that reports included best practice reminders in relation to the management of peripheral vascular catheter care bundles which is also representative of good practice.

HIQA viewed peripheral vascular catheter care bundle record sheets on the National Liver Unit which demonstrated good compliance with all elements of this care bundle. However audits of care bundle compliance were not routinely carried out. Urinary catheter care bundles were not in use on the ward.

Hospital management informed inspectors that urinary catheter care bundles had commenced at dedicated pilot sites at the hospital. It was reported to HIQA that central venous catheter and ventilator-associated pneumonia care bundles were in place in the Intensive Care Unit.

St Vincent's University Hospital needs to continue to build on the progress to date to fully embed infection prevention care bundles, both implementation and audit, into routine practice in the best interest of patients.



## 2.7 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.

Inspectors looked at implementation of aspects of standard and transmission-based precautions to assess the detection, prevention, control and management of transmission of multidrug-resistant bacteria at the hospital.

### 2.7.1 Hospital systems 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.<sup>17</sup> 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.<sup>18,19</sup>

Hospital managers told inspectors that there were 614 patient beds at St. Vincent's University Hospital. This included 536 inpatient and 78 day case beds. There were 602 in-patient beds occupied on the day of inspection. The hospital had 166 single rooms in total of which 136 had en-suite facilities. In addition, there were 12 neutral or negative pressure isolation rooms at the hospital.

On the day of inspection, 173 inpatients required single room isolation of which 132 were isolated in single rooms. The remainder of inpatients, where transmission-based precautions were indicated were cohorted<sup>§§§§</sup> with patients who were colonised<sup>\*\*\*\*\*</sup> or infected with a transmissible infection in clinical areas at the hospital.

The hospital had implemented control measures to address deficiencies in relation to isolation room facilities. Twice daily ward rounds were undertaken by the Infection

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

\*\*\*\*\* 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.

Prevention and Control Team whereby isolated patients and screening requirements were reviewed. The team devised a hierarchy of isolation prioritisation policy for the management of patients with a transmissible infection. This policy was available to staff in clinical areas as a reference guide in relation to isolation requirements and prioritised patients with CPE for isolation. The team also undertook validity audits in relation to infection prevention and control isolation practices in clinical areas at the hospital.

On the day before this inspection 'Trolley Watch'<sup>††††</sup> figures indicated that 28 patients were on 'trolleys' in the hospital indicating that there was insufficient capacity at the hospital to accommodate admitted patients.

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

Identifying patients that are vulnerable to infection is a critical step during admission, discharge or transfer of patients 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.

The hospital had processes in place to facilitate identification of patients who required transmission-based precautions. An infection prevention and control alert system was available on existing hospital electronic information systems including patient flow electronic white boards in clinical areas which identified patients previously colonised or infected with a transmissible infection. The hospital electronic patient information system also generated an automatic email alert to the Infection Prevention and Control Team.

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. The hospital had devised an 'infection requiring isolation care plan' which identified nursing and hospital-based interventions required for the management of patients with a transmissible infection.

Nursing admission, inter-departmental and inter-hospital transfer and discharge documentation reviewed by inspectors in clinical areas inspected included an infection control section. Inspectors noted that not all of the indications listed in national guidance document in relation to screening requirements for CPE were included in nursing admission documentation. Staff in one clinical area visited reported that nursing assessment documentation was currently under review and

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<sup>††††</sup> Trolley Watch Figure are compiled by the Irish Nurses and Midwives Organisation to show the number of admitted patients in hospital who are accommodated on trolleys each day because of a shortage of available hospital beds. Online. Available at: <https://www.inmo.ie/6022>

due to be updated shortly. In light of the National Public Health Emergency Plan to address CPE, it might be helpful to include prompts relating to the latest CPE screening guidance. Additionally, medical discharge summary documentation reviewed did not include an infection control section and should be reviewed to provide assurances that necessary information in relation to transmissible infection is shared in a timely manner between services.

Patient assessment also includes screening for multidrug-resistant microorganisms, where appropriate, according to national recommendations. In the National Liver Unit inspectors were told that screening for MRSA, VRE and Carbapenemase Producing *Enterobacteriaceae* (CPE), was in line with national guidelines. However, in the medical ward inspected screening in relation to CPE was not fully in line with national screening guidelines.

During this inspection an inspector briefly visited two additional clinical areas to assess compliance in relation to national CPE screening guidelines. Screening for multidrug-resistant organisms including CPE was in line with national guidelines in the Intensive Care Unit however in the Day Ward screening was more focused on MRSA. Staff in both areas visited were unaware that the CPE screening guidelines had recently been updated with the expectation that full compliance with enhanced CPE screening would be in place by 1 March 2018.

Screening and alert pathogen surveillance is an important protection for the hospital and patients it treats in monitoring multidrug-resistant organism colonisation rates. Quarterly surveillance reports detailing the numbers of new cases of MRSA, VRE and Carbapenem-resistant *Enterobacteriaceae* and *Clostridium difficile* were issued to relevant consultants, clinical nurse managers and assistant directors of nursing for each individual clinical area in the hospital. Surveillance reports were also presented to the Quality and Patient Safety Executive and the Infection Prevention and Control Committees at the hospital. Multidrug-resistant organism surveillance reports were displayed on a notice board in a public area in the National Liver Unit.

## **Hand hygiene**

St. Vincent's University Hospital participated in national hand hygiene audits, the results of which are published twice a year. The hospital compliance rate in the national hand hygiene audit in October/December 2017 was 96.2% which had exceeded the current required compliance target of 90% set by the HSE. The hospital had consistently exceeded the national HSE compliance target with hand hygiene practice which is commendable. The hospital is providing positive leadership in this regard.

Local hand hygiene compliance audits were undertaken across the hospital on a regular basis. The infection prevention and control report for 2017 provided a clear

and detailed account of hand hygiene compliance and non-compliance by clinical areas and staff groups for the year. Reports were presented in a meaningful manner with data plotted on graphs maximising the impact of the data and facilitating oversight and targeted improvement plans by the team in relation to hand hygiene performance across the hospital.

Quarterly audits of staff compliance with hand hygiene practices in 38 clinical areas were carried out by the Infection Prevention and Control Team in 2017 which included an audit of all clinical areas in quarter two and four and a re-audit of non-compliant clinical areas in quarter one and three.

Local hand hygiene compliance audits conducted in the National Liver Unit in December 2017 showed a compliance rate of 97%. Twice yearly hand hygiene compliance audits for the medical ward inspected also showed the ward achieved 90% compliance with hand hygiene practices, which was the minimum target set by the hospital in 2017.

### **Hygiene audits**

The hospital had an ongoing programme of auditing in relation to environmental hygiene at the hospital. The hospital had comprehensive specifications for environmental 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.<sup>20,21</sup> Environmental hygiene audits were performed by the Facilities Management Team and by an external contract cleaning company. Audit results and quality improvement plans for action in relation to the findings were presented to local managers, assistant directors of nursing, estates and facilities managers, and managers from the external contract cleaning company.

The hospital held weekly cleaning contract review meetings to discuss audit findings, non-conformities and follow up actions. This meeting was attended by the Facilities Manager, and members of the Infection Prevention and Control Team and external contract cleaning company. Environmental hygiene audit results were presented and overseen at quarterly Hospital Hygiene Quality Improvement Group and Infection Prevention and Control Committee meetings.

An overall hospital hygiene audit report for January to October 2017 showed that 152 environmental hygiene audits were completed at the hospital with an average compliance rate of 93%. Hospital environmental hygiene audits reviewed showed that findings were tracked and trended and clearly identified non-compliant clinical areas facilitating oversight and action by hospital management teams and local managers.

In addition, the Infection Prevention and Control Team performed validity audits in relation to the environment and patient equipment hygiene at the hospital. An annual overall hospital audit report showed that environment and patient equipment hygiene achieved 78% and 82% compliance respectively in 2017. In the context of a national CPE crisis and the endemic VRE problems, the hospital should focus on their own recommendations for improvement in practice to ensure compliance remains above 85%.

Findings were fed back to staff and senior management teams to promote learning and facilitate implementation of a quality improvement action plan to address areas for improvement.

Opportunities for improvement were identified in relation to auditing of patient equipment hygiene and findings in this regard will be presented in section 2.7.2 of this report.

### **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.

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,<sup>++++</sup> imipenem, ertapenem. National guidelines<sup>22</sup> recommend that hospitals have a process in place to facilitate pre-authorization for the use of all carbapenem antibiotics by an infection specialist (Consultant or Specialist Registrar in Clinical Microbiology or Infectious Diseases).

St. Vincent's University Hospital had an antimicrobial stewardship programme in place which was coordinated by the Antimicrobial Advisory Sub-Committee, a sub-group of the Drugs and Therapeutic Committee. Quarterly reports were presented by the Antimicrobial Advisory Sub-Committee to the Infection Prevention and Control Committee.

The microbiology team undertook daily rounds in the Intensive Care Unit and attended multidisciplinary meetings in the National Liver Unit, Haematology/Oncology Unit, and orthopaedic and cystic fibrosis services on a

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<sup>++++</sup> 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.

regular basis. A risk-based approach informed microbiology rounds in other clinical ward areas at the hospital. Microbiology rounds were undertaken in response to significant laboratory results or when unusual clusters or outbreak of infection was identified and antimicrobial prescriptions were reviewed. Feedback was given to prescribing teams if and when required.

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. Meropenem was removed from clinical areas and pre-authorisation by a Consultant Microbiologist was required. Guidelines in relation to restricted antimicrobial prescribing and surgical prophylaxis was available to support staff at the hospital.

Performance and impact of the restricted antibiotic policy and antimicrobial consumption was audited and trended. Audit reports were submitted to the Clinical Audit Office for approval and presented at quarterly infection prevention and control committee meetings. An audit report in relation to antimicrobial stewardship key performance indicators reviewed by inspectors showed that the hospital achieved compliance in relation to the hospital's restricted antimicrobial policy and the hospital's antimicrobial prescribing guidelines in 2017.

Antimicrobial consumption data was also reported to the Health Protection Surveillance Centre (HPSC) for comparative analysis nationally. An annual point-prevalence survey was performed as part of the requirements of the national antimicrobial stewardship programme. The hospital also 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**

There was no outbreak of infection at the hospital on the day of this inspection. A hospital annual summary outbreak report for 2017 reviewed by inspectors showed that there had been ten outbreaks of infection in the preceding 12 months of which nine were associated with the older central ward block at the hospital. This was an increase on the rate of outbreaks from 2016.

The hospital had shown that efforts had been made to manage a risk highlighted by HIQA in a previous report in 2016 in relation to a high incidence of VRE infection at the hospital. The Infection Prevention and Control Team undertook twice-yearly retrospective audits in relation to compliance with VRE screening in high risk surgical wards with a high prevalence of VRE. Audit reports reviewed by inspectors showed that compliance with VRE screening had improved in all three clinical areas and

action plans were implemented until full compliance was achieved. The number of reported new cases of VRE hospital-acquired infections had subsequently decreased in 2017. The hospital reported that there had been a 9% reduction in new cases of hospital-acquired VRE infection in 2017 compared to 2016.

The hospital reported two outbreaks of CPE infection in 2017 of which one occurred in the National Liver Unit prior to relocation to a new facility in October 2017. HIOA was informed that there had been no outbreak of infection in the Unit since relocating to the new facility. Surveillance reports for 2017 reviewed by inspectors showed that the number of new cases of hospital-acquired CPE had increased from three cases in 2016 to 11 cases in 2017. Surveillance reports also showed an 11% increase in the number of new cases of hospital-acquired MRSA in 2017.

Three outbreaks of *Clostridium difficile* infection were reported in 2017. This was a 29% increase in the number of new cases of hospital-acquired *Clostridium difficile* when compared with 2016 numbers. Inspectors were informed that a root cause analysis was performed on all severe cases of *Clostridium difficile* infection associated with a cluster or an outbreak of infection. In line with national guidance, the hospital should also carry out a root cause analysis on each episode of severe infection to identify potentially preventable factors and prevent recurrence. It was reported that molecular typing of isolates was undertaken in all cases of *Clostridium difficile* infection at the hospital. The hospital had introduced an evidenced-based care bundle for the management of patients with a *Clostridium difficile* infection.

Factors identified in the 2017 outbreak report as contributing to the number of outbreaks in the older central ward block at the hospital included some of the following issues:

- lack of isolation rooms
- delay in isolating patients
- lack of en-suite facilities in single rooms
- inadequate number of toilets
- high bed occupancy rates
- multiple bed moves and internal patient transfers
- increased number of patients with multidrug-resistant organisms
- increased complexity and prolonged lengths of stay
- suboptimal screening for multidrug-resistant organisms
- lack of dedicated hand hygiene sinks and doors in some 'dirty' utility rooms
- inadequate cleaning of patient care equipment
- deficiencies in relation to environmental cleaning.

Collectively these factors coupled with dated infrastructure in the older central ward block does not facilitate effective prevention and control in an acute hospital setting.

The hospital had a system in place to manage and control clusters or outbreaks of infection at the hospital. In addition to early implementation of control measures and daily outbreak control team meetings, additional control measures were put in place by the hospital to manage and control outbreaks of infection. These included ward closures, increased screening and typing for multidrug-resistant organisms, increased auditing of practices in relation to cleaning and infection prevention and control practices on affected wards, and introduction of disinfectant wipes for cleaning of patient care equipment. A dedicated database for patients infected or colonised with CPE had been introduced by the Infection Prevention and Control Team which was updated on a weekly basis. The hospital had invested in technology to assist with rapid microbiological testing for influenza infection with plans to expand the use of this technology to include rapid diagnosis of CPE.

Outbreak reports were produced and recommendations made in respect of outbreaks of infection by the Infection Prevention and Control Team. Outbreak reports were presented at infection prevention and control committee and quality and patient safety executive committee meetings at the hospital in line with National Standards. Inspectors were informed that governance arrangements at the hospital facilitated direct reporting by the team to the Executive Management Team, during outbreaks of infection. Outbreaks of infection were reported to the hospital's Board of Directors.

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 influenza vaccine uptake figures<sup>23</sup> by the HSE for 2017-2018 found that 42.5% staff at St. Vincent's University Hospital had obtained the seasonal influenza vaccine by December 2017.

Influenza vaccination was a standing agenda item at the Quality and Patient Safety Executive Committee quarterly meetings at the hospital which shows a commitment by management to reduce the risk of influenza infection at the hospital. Inspectors were informed by hospital management that the uptake among health care workers had increased to 50% at the time of inspection which is commendable.

### **2.7.2 Prevention and control of multidrug-resistant organisms in clinical areas inspected**

Systems and measures to prevent the spread of multidrug-resistant organisms were reviewed in both clinical areas inspected.



## The National Liver Unit

During a 2016 inspection HIQA highlighted that the infrastructure and facilities in St Brigid's Ward, the National Liver Unit at that time, did not facilitate effective infection prevention and control for patients who are known to be at greater risk of acquiring infection. Subsequent communication to HIQA from the hospital stated that the hospital recognised the high incidence of VRE acquired on the ward and the infrastructure of ward to be significant issues in the context of infection prevention and control. The National Liver Unit was relocated to the Nutley Wing in October 2017. The new ward was designed in compliance with national and international infection prevention and control guidance documents.

The National Liver Unit now comprised 20 single occupancy patient rooms with en-suite toilet and shower facilities, thus enabling best practice in infection prevention and control. High efficiency particulate air (HEPA) filter air purifier units had been installed in ten rooms prior to the construction of the new National Maternity Hospital on the grounds of the hospital, as a control measure for aspergillosis. Four of the rooms had neutral pressure ventilated isolation suites with en-suite facilities. Double-glazed room vision panels with integral blinds were installed outside each room. Appropriate ancillary facilities were available for the storage and management of supplies and equipment.

Colour-coded signage to communicate isolation precautions was in place outside infection control isolation rooms. Appropriate supplies of personal protective equipment (PPE) were also observed to be available outside isolation rooms.

Fifteen of the beds on the Unit were ring-fenced for patients under the care of the hepatology service. The remaining five beds were available for general medical and surgical patients. A patient requiring airborne isolation precautions had been accommodated in a standard single en-suite room.<sup>§§§§§</sup> While these rooms reduce the risk of cross-infection they are not appropriate for airborne isolation. The hospital's isolation prioritisation policy should be reviewed to incorporate a risk assessment to inform decisions regarding which patients to admit to high risk areas such as the National Liver Unit, taking into account the clinical needs of the patient, the risk status of the source patient and the risk category of the ward. While the isolation prioritisation tools do not replace expert advice, they may ensure a rational and consistent approach to the prioritization of single room usage, particularly overnight and at weekends when specialist infection prevention and control nursing advice may not be readily available.

The National Liver Unit is classified as a very high risk functional area and therefore a corresponding high standard of environmental and equipment hygiene is expected.

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<sup>§§§§§</sup> Inclusion of a ventilation system distinguishes an isolation suite/room from a single room.

The new ward was spacious with surfaces, finishes and furnishings that readily facilitated cleaning. Roles and responsibilities were clearly defined in relation to cleaning of both the environment and patient equipment. In addition, supervision arrangements were in place. Overall the patient environment and patient equipment were generally clean with a few exceptions. Ancillary rooms were tidy and well organised.

The most recent environmental hygiene audit results showed that environmental hygiene achieved 97% and 95% compliance with desirable standards in November and December 2017 respectively. Detailed audit reports included corrective action plans in response to findings. The high levels of compliance achieved in environmental hygiene audits were also reflected on the day of inspection. Regular auditing in relation to the patient environment and patient equipment should form part of the daily management and supervision of hospital cleaning. Ongoing patient equipment hygiene audit results were not available at the time of inspection.

The Unit also achieved 95% compliance in an infection prevention and control validity audit which included the environment and patient equipment in 2017.

Notwithstanding that the hospital had a comprehensive environmental hygiene audit schedule in place, the hospital needs to ensure that the frequencies of both environmental and patient equipment hygiene audits, technical and managerial, for very high risk functional areas such as the National Liver Unit is aligned with national guidance<sup>20,21</sup> or best practice<sup>24</sup> guidance.

### **A medical ward**

The medical ward inspected was located in the older central ward block at the hospital. The infrastructure was outdated and the design did not meet desirable modern standards or facilitate implementation of effective infection prevention and control measures.<sup>17,25,26</sup> The ward could accommodate 26 in-patient beds which comprised one two-bedded, two five-bedded and two six-bedded rooms and two single rooms none of which had en-suite facilities. Multi-occupancy rooms and a 'dirty' utility room lacked doors and opened directly onto a ward corridor. This is not appropriate from an infection prevention and control perspective. The number of toilet and shower facilities, ancillary rooms and storage facilities were insufficient on the ward.

On the day of inspection one patient on the ward required transmission-based precautions and was accommodated appropriately in a single room. Colour-coded signage to communicate isolation precautions was also in place and the door to the single isolation room was closed as appropriate. An infection prevention and control audit showed that the ward achieved 100% compliance in relation to isolation facilities and practices in May 2017.

However opportunities for improvement were identified in relation to the management, storage and auditing of patient equipment. Brown staining was observed on the under-surface of two patient armchairs, a commode and a raised seat located in a toilet facility. A number of intravenous drip stands, intravenous syringe driver and armchair aids and accessories were stained and stored in a patient toilet and shower facility. Such storage is not appropriate and was highlighted and addressed by staff at the time of inspection.

Not all records of decontamination of ward equipment specifications reviewed by inspectors were aligned with minimum cleaning frequencies for such clinical areas. Medical wards are categorised as moderate-risk areas and periodic cleaning and auditing of patient equipment should be aligned with recommended national minimum periodic cleaning schedules. Furthermore it was highlighted to the inspector that care 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. Staff responsible for cleaning patient equipment should have allocated time, and know what needs to be cleaned and how often and be properly supervised.

Patient equipment hygiene was not routinely audited apart from annual and or bi-annual validity patient equipment infection prevention and control audits. To ensure patient equipment is sufficiently cleaned, ongoing audit of cleanliness is required by front line managers and validated by management.

Overall the patient environment inspected was generally clean with few exceptions. 'Deep cleaning' was being carried out in a patient care area at the start of the inspection. The ward had a policy in relation to changing bedside curtains and curtains inspected were observed to be clean. Some surfaces and finishes did not appear to have been proactively maintained such as patient bedside tables, walls and doors to a toilet and shower facility and wall paintwork in a treatment room.

The most recent environmental hygiene audit results showed the ward achieved 90%, 86%, 91% and 89% compliance with recommended standards in June, September and November 2017 and February 2018 respectively.

An infection prevention and control validity audit which included environmental and patient equipment hygiene in 2017 showed that the ward achieved 88% compliance which desirable standards.

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

During the 2016 inspection, HIQA identified high risks in relation to infection prevention and control. The increased incidence of hospital-acquired VRE colonisation at the hospital coupled with the poor overall infrastructure of St. Bridget's Ward, the National Liver Unit did not facilitate effective infection prevention and control. It was apparent that St Vincent's University Hospital was actively endeavouring to address issues previously identified by HIQA.

The hospital had relocated the National Liver Unit at St. Bridget's Ward to the Nutley Wing in October 2017 which had been designed in compliance with national and international infection prevention and control guidance documents. Coupled with this the hospital audited compliance with VRE screening guidelines at the hospital. The number of reported new cases of VRE hospital-acquired infections had subsequently decreased in 2017. Notwithstanding the concerted efforts made by the hospital, VRE remains a prevalent organism and the dated infrastructure in the older central ward block remains a challenge for the hospital as a whole.

HIQA reviewed the quality improvement plan developed by the hospital following the last HIQA infection prevention and control inspection in 2016. Inspectors were informed that a phased upgrade was planned for areas identified in the previous inspection which fell short of modern standards of infection control. A business case had been submitted to the HSE to support refurbishment and improvement works at the hospital. A hand hygiene sink programme was in place which included installing hand hygiene sinks in 'dirty' utility rooms identified in the previous inspection. Additionally technical services had reviewed the possibility of placing doors at entry points into these rooms.

Documentation reviewed by inspectors showed that multiple quality improvement projects had been undertaken by staff at the hospital. A project to reduce the risk of skin tears and protect skin from the effects of moisture and friction damage developed an evidence-based skin care plan which involved removing bars of soap completely from the hospital.

A formal legionella hospital site risk assessment had been performed at the hospital in November 2017. Hospital management reported that internal control and preventative measures in relation to water-borne infection were implemented including regular outlet flushing and microbiological testing of water. Governance and oversight in relation to water-borne infections was the responsibility of the Water Management Committee at the hospital. A report was presented at quarterly infection prevention and control committee meetings.

## 4.0 Conclusion

The hospital management team were clearly focused on making improvements in relation to the prevention and control of infection at St. Vincent's University Hospital. The relocation of the National Liver Unit to the Nutley Wing was a significant achievement and a targeted approach to reduce the rate of hospital-acquired VRE in this specialist area and from a hospital-wide perspective.

In light of the National Public Health Emergency Plan activated on 25 October 2017 by the Minister for Health in response to the increase and spread of Carbapenemase Producing *Enterobacteriaceae* (CPE) in Ireland, the Health Service Executive introduced screening guidelines in relation to CPE for the acute hospital sector in June 2017. Inspectors found that St. Vincent's University Hospital 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.

It is acknowledged that the hospital had identified this issue as an area of concern prior to this inspection and had sought assistance in dealing with this risk. The Chief Executive Officer 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.

During this inspection, inspectors found that effective leadership, governance and management arrangements were evident around the prevention and control of healthcare-associated infection at St. Vincent's University Hospital. 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.

Clear oversight of performance across all clinical areas in relation to infection prevention and control was facilitated by ongoing surveillance, monitoring and audit programmes and well-presented reports. This provides a good example of an ongoing quality improvement process for other service providers and the hospital was providing positive leadership in this regard. The hospital had a targeted surgical site infection programme in place and data from this programme was benchmarked with comparable international data.

The hospital had systems in place to identify and manage risks in relation to the prevention and control of healthcare-associated infections. Hospital staff were

supported to implement best practice in relation to infection prevention and control with up-to-date policies, procedures and guidelines.

Overall the patient environment inspected was generally clean with few exceptions however opportunities for improvement was identified in relation to the management of patient equipment. To ensure patient equipment is sufficiently cleaned, ongoing audit of cleanliness is required.

The hospital has consistently exceeded the national HSE compliance target with hand hygiene practice which is commendable. The hospital needs to continue to build on the progress to date to fully embed infection prevention care bundles, implementation and audit, into routine practice in the best interest of patients.

The number of outbreaks of infection at the hospital posed many challenges for both staff and patients alike. The hospital had identified many factors in the older central ward block at the hospital which contributed to the onset of outbreaks of infection and hindered their management. Appropriate design is a critical component in preventing healthcare-associated infections in particular through the provision of sufficient single-patient rooms with en-suite facilities, ample physical space in clinical areas, appropriate ancillary rooms and an environment that can be readily cleaned and decontaminated. Therefore, the hospital infrastructure in the older central ward block needs to be substantively reviewed and addressed in hospital site development plans going forward.

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## 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*.

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 St. Vincent's University Hospital, Dublin regarding the high risk identified during HIQA's inspection at St. Vincent's Hospital.**



Michael Keane  
Acting Chief Executive Officer  
St Vincent's University Hospital  
Elm Park  
Dublin 4  
[m.keane@st-vincent's.ie](mailto:m.keane@st-vincent's.ie)

27 February 2018

Ref: PCHCAI 2018/14

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 St Vincent's University Hospital, Dublin against the *National Standards for the prevention and control of healthcare-associated infections in acute healthcare services* on 26 February 2018.

During the course of the inspection inspectors identified that the hospital had not ensured the full and consistent implementation of the national screening guidelines in relation to 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 2018.

Head Office:  
Unit 1201, City Gate, Mahon,  
Cork, Ireland.  
Tel: +353 (0)21 240 9000  
Fax: +353 (0)21 240 9900

Dublin Regional Office:  
George's Court, George's Lane,  
Dublin 7, Ireland  
Tel: +353 (0)1 014 7400  
Fax: +353 (0)1 814 7400

e-mail: [info@hiqa.ie](mailto:info@hiqa.ie) [www.hiqa.ie](http://www.hiqa.ie)

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 close of business on **Tuesday 06 March 2018** to [qualityandsafety@higa.ie](mailto:qualityandsafety@higa.ie). Should you have any queries, please do not hesitate to contact me at [qualityandsafety@higa.ie](mailto:qualityandsafety@higa.ie).

Yours sincerely



**NOREEN FLANNELLY-KINSELLA**  
Authorised Person

CC: Mary Dunnion, Director of Regulation, Health Information and Quality Authority  
Mary Day, CEO, Ireland East Hospital Group  
Liam Woods, National Director of Acute Services, Health Service Executive

 **Head Office:**  
Unit 1301, City Gate, Mahon,  
Cork, Ireland.  
Tel: +353 (0) 21 240 9300  
Fax: +353 (0) 21 240 9600

 **Dublin Regional Office:**  
George's Court, George's Lane,  
Dublin 7, Ireland  
Tel: +353 (0) 1 814 7400  
Fax: +353 (0) 1 814 7488

e-mail: [info@higa.ie](mailto:info@higa.ie) [www.higa.ie](http://www.higa.ie)

### Appendix 3: Copy of the response letter received from St. Vincent's University Hospital, Dublin regarding the high risk identified during HIQA's inspection at St. Vincent's Hospital.



**ST. VINCENT'S  
UNIVERSITY HOSPITAL**  
Elm Park

St. Vincent's University Hospital  
Elm Park, Dublin 4, Ireland

T +353 1 221 4200  
www.stvincents.ie

6<sup>th</sup> March 2018.

Ref: PCHCAI 2018/14

Ms. Noreen Flannelly-Kinsella,  
Authorised Person,  
HIQA,  
Dublin Regional Office,  
George's Court,  
George's Lane,  
Dublin 7.

Dear Ms. Flannelly-Kinsella,

Thank you for your letter of 27<sup>th</sup> February 2018 in relation to the unannounced inspection carried out by HIQA at St. Vincent's University Hospital (SVUH) on 26<sup>th</sup> February 2018.

Firstly can I assure you that the incomplete implementation to date of the national CPE screening guidelines was already identified as a risk by SVUH and is being actively managed to mitigate any possible impact on patients. The incomplete implementation of the national guidelines has been highlighted at the SVUH Quality and Patient Safety Executive meeting in October 2017, the SVUH Infection Prevention and Control Committee in December 2017, and the IEHG HCAl committee meetings in September 2017 and most recently in January 2018. In addition the hospital is fully engaged with the HSE and Ireland East Hospital Group (IEHG) efforts in relation to addressing the challenge posed by CPE. The hospital views this work as ongoing and we are approaching this by systematically identifying specific risk areas and targeting currently available resources to address the highest risks while the hospital awaits approval for the additional resources that will be required to ensure full implementation of the national guidelines.

Current screening for CPE consists of the following:

1. The hospital screens the following patient groups for CPE, as recommended by the aforementioned national CPE screening guidelines: -
  - All contacts of a patient with CPE (weekly for a minimum of 4 weeks)
  - All patients transferred from another hospital (in Ireland or elsewhere)
  - All admissions to critical care units (on admission and weekly thereafter)
  - All admissions to the haematology/oncology wards (on admission and weekly thereafter)



St. Vincent's Healthcare Group Board of Directors, Chairman: Mr. James Heenan,  
Dr. David Brophy, Mr. John Conroy, Mr. Gerry O'Flaherty, Prof. Pauline Sweet, Dr. Myles Lee,  
Ms. Suzanne McCabe, Prof. Patrick Murray, Mr. Frank O'Donoghue, Mr. William Shannon  
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Registered Office: Elm Park, Dublin 4



2. Following a risk assessment of the patient profile, all admissions to the national liver transplant unit and the GI surgical wards are screened for CPE on admission and weekly thereafter. We consider these patients to be at high risk of colonisation with CPE for a number of reasons, including previous contained outbreaks of CPE on these units, tertiary referral units, liver transplant, pancreas transplant, hepatopancreatobiliary surgery), multiple antimicrobial exposures, GI surgery and frequent transfers between these units and the intensive care unit.
3. In addition to the CPE screening detailed above, the microbiology laboratory completes a full work-up (identification and antimicrobial susceptibility testing) on enterobacteriales from in-patient clinical samples to ensure that any CPE isolates are detected.

I think it is important to summarise the significant resource impact that full compliance with the national guidelines entail. At present, approximately 21,000 CPE screens are being processed annually by the microbiology laboratory in SVUH. The hospital has responded with a significant reorganisation of work flows and staff deployment in order to accommodate the increase in CPE screening samples. However, there remain some patient groups in whom consistent CPE screening has not yet been implemented in line with the national CPE screening guidelines. These are patients who have been an in-patient in any hospital in the preceding 12 months and patients who normally reside in a long term care facility. SVUH estimates that the full year implementation of CPE screening in these patients alone will require an additional 10,000 screening samples per year. It will not be possible to process the estimated additional 10,000 samples without another medical laboratory scientist. The hospital has again responded with a mitigating action and submitted a business case for the appointment of a microbiology laboratory scientist to the Ireland East Hospital Group in November 2017.

Our environment also poses some challenges in terms of screening requirements. Despite the relatively small numbers of CPE cases that we see (18 in 2017, of which 11 were detected more than 48 hours after admission; 2 so far in 2018, none of which were detected more than 48 hours after admission), we have a large number of CPE contacts (approximately 500) that require screening as a result of the existing infrastructure in the central ward block which necessitates sharing of toilet facilities by multiple patients. The ageing infrastructure is obviously not unique to SVUH but it must be noted that this will require a significant additional expenditure allocation for us to eliminate this screening requirement.

I should also point out the additional risk mitigation steps taken by the hospital. The infection and prevention team do daily rounds on all wards in the hospital and if any patients are identified as coming from any long term care facilities in whom CPE outbreaks have been notified or as having a previous admission to any hospital in whom there is an ongoing CPE outbreak, then CPE screening is undertaken.



I hope that I have assured you that the risk identified during the unannounced inspection is one that is and will continue to be managed by SVUH. However, the hospital views the appointment of the aforementioned microbiology medical laboratory scientist as critical to meet additional screening requirements and thereby ensure full compliance with national guidelines. I am currently awaiting the decision of the IEHG on the business case submitted.

Yours sincerely,

A handwritten signature in black ink that reads "Michael Keane".

**Professor Michael Keane,  
Acting CEO  
& Lead Clinical Director**

c.c. Mary Durnion, Director of Regulation/HIQA  
Mary Day, CEO/IEHG  
Liam Woods, National Director of Acute Services/HSE



**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](mailto:qualityandsafety@hiqa.ie)**

**URL: [www.hiqa.ie](http://www.hiqa.ie)**

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