



**Health
Information
and Quality
Authority**

An tÚdarás Um Fhaisnéis
agus Cáilíocht Sláinte

Report of the unannounced inspection at Connolly Hospital Blanchardstown, Dublin.

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

Date of on-site inspection: 14 December 2017

About the Health Information and Quality Authority

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

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

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

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

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1. Introduction

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

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

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

Phase One

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

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

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

Phase Two

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

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

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

Phase Three

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

Information about this inspection

This inspection report was completed following an unannounced inspection carried out at Connolly Hospital Blanchardstown by Authorised Persons from HIQA; Emma Cooke, Noreen Flannelly-Kinsella and Aileen O' Brien. The inspection was carried out on 14 December 2017 between 09:45hrs and 17:30hrs.

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 a:

- general surgical ward
- specialist surgical ward

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

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

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

2. Findings at Connolly Hospital Blanchardstown

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

2.1 Governance

Line of enquiry 1.1

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

Governance arrangements

Connolly Hospital Blanchardstown is a statutory hospital owned and managed by the Health Service Executive (HSE). The hospital is part of the Royal College of Surgeons in Ireland (RCSI) Hospital Group.

Inspectors found that there were clear lines of accountability and responsibility in Connolly Hospital Blanchardstown in relation to governance and management arrangements for the prevention and control of healthcare-associated infection.

The hospital had an established governance structure where the Infection Prevention and Control Team reported to the Infection Prevention and Control Committee which was chaired by the General Manager. The Infection Prevention and Control Committee reported to the Quality and Safety Executive Committee and this committee reported directly to the General Manager through the Executive Management Team. The General Manager as the person with overall responsibility and accountability for the prevention and control of healthcare-associated infection at the hospital reported to and attended monthly performance meetings with the RCSI Hospital Group Executive Management Team.

The Infection Prevention and Control Committee membership included representatives from the Infection Prevention and Control Team, nursing and medical representatives, corporate services and quality and safety staff. The committee's terms of reference outlined their aims and objectives which included providing support and advice to the Infection Prevention and Control Team and the monitoring and evaluation of the infection prevention and control programme. An annual report completed by the Infection Prevention and Control Team outlined that the committee meets every six weeks approximately and met seven times in 2016. Documentation reviewed by inspectors showed that committee meetings followed a standardised agenda which included the following:

- infection prevention and control quality improvement plan
- decontamination services
- audit and surveillance
- antimicrobial stewardship
- infection prevention and control guidelines
- outbreak preparedness
- education and training
- hygiene services
- water safety
- estates.

Inspectors were informed that a number of subcommittees including water safety, decontamination, antimicrobial stewardship and estates also reported to the Infection Prevention and Control Committee. The hospital's organisational diagram should be updated to reflect these arrangements.

The Quality and Safety Executive Committee met on a monthly basis and was chaired by the Clinical Director. Membership included multi-disciplinary directorate and management team representation. Minutes of meetings reviewed by inspectors outlined that updates from the Infection Prevention and Control Committee and subcommittees were discussed at these meetings. Other infection prevention and control agenda items discussed included incident reviews, hospital performance metrics and hospital-acquired infection rates.

The Executive Management Team met on a monthly basis and meetings were chaired by the General Manager. Infection prevention and control was a standing item on the agenda at these meetings. The General Manager further reported any issues in relation to infection prevention and control to the RCSI Hospital Group Executive Management Team.

Overall, effective reporting systems in relation to infection prevention and control through a bottom up and top down reporting process was evident at the hospital.

Infection prevention and control service

The infection prevention and control service at Connolly Hospital was led by a consultant microbiologist and delivered by a multidisciplinary infection prevention and control team. Membership of this team included the following:

- 1.5 Whole Time Equivalent (WTE)* consultant microbiologists
- two WTE infection prevention and control nurses

* 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.

- one WTE surveillance scientist position
- one WTE antimicrobial stewardship pharmacist.

The team did not have a dedicated administrative resource to support the implementation of their infection prevention and control programme.

Inspectors were informed that the Infection Prevention and Control Team met on a weekly basis. The team's workload was described in the Infection Prevention and Control Team annual report for 2016 and included microbiological surveillance and outbreak management, delivery of education and review of policies, procedures and guidelines. The team attended and provided expert advice to hospital management and to hospital committees in relation to decontamination, hygiene, water safety and medication safety. The team also provided advice in regard to construction works at the hospital as necessary.

Hospital management informed inspectors that current infection prevention and control team resources needed to be increased in light of the scale and complexity of services provided and activity levels at the hospital. Minutes of infection prevention and control committee meetings outlined a need for additional infection prevention and control team resources to deal with ongoing hospital building projects, outbreak management and expanded patient screening requirements for Carbapenemase Producing *Enterobacteriaceae* (CPE)[†]. The need for administrative support was also discussed at these meetings. Documentation reviewed by inspectors outlined that a business case for administrative support was submitted by the Infection Prevention and Control Team during 2016, however no additional resources had been allocated. A business case for an additional medical scientist to support expanded microbiological screening for CPE in line with national recommendations was in the process of being developed.

Consultant microbiologist advice was available to clinical staff on a 24-hour basis, seven-days-a-week.

Monitoring and evaluation

The hospital monitored and reported the following performance indicators in relation to the prevention and control of healthcare-associated infection in line with Health Service Executive national reporting requirements:

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

[†] Carbapenemase producing Enterobacteriaceae (CPE), are a family of bacteria which can cause infections that are difficult to treat because they are resistant to most antimicrobials, including a class of antimicrobials called carbapenems which have typically been used as a reliable last line treatment option for serious infection. Bloodstream infection with CPE has resulted in patient death in 50% of cases in some published studies internationally.

In addition to these performance indicators, the hospital had devised a number of performance indicators to facilitate the ongoing monitoring and evaluation of the prevention and control of healthcare-associated infection at the hospital which included the following;

- number of new and hospital acquired cases of vancomycin-resistant *Enterococci* (VRE)
- percentage number of patients isolated in a single room within 24 hours of identified need for transmission-based precautions
- compliance with infection prevention and control guidelines, care bundle implementation, antimicrobial prescribing guidelines, surgical antimicrobial prophylaxis prescribing guidelines and hospital total antimicrobial consumption
- alcohol hand rub consumption
- percentage compliance of hospital staff with the World Health Organisation 5 moments of hand hygiene
- mandatory hand hygiene and infection prevention and control training uptake by current healthcare staff.

The hospital had developed a traffic light evaluation system in which tolerance levels had been set for each performance indicator and where applicable, targets for improvement were set. Evaluation of the progress against local key performance indicators were discussed at relevant hospital committees.

The Infection Prevention and Control Team also monitored the following;

- surveillance of 'alert' organisms and 'alert' conditions[‡]
- clusters or outbreaks of infection
- data reported to the European Antimicrobial Resistant Surveillance Network (EARS-Net)[§]
- intensive care unit-acquired blood stream infection
- surgical site infection surveillance rates in relation to orthopaedic surgery for fractured neck of femur.

Monthly microbiological surveillance reports were circulated to the Executive Management Team and relevant clinical staff at the hospital. In addition, reports

[‡] Alert conditions include physical symptoms such as skin rashes, vomiting, diarrhoea, respiratory illness that could be due to an infectious illness

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

were circulated twice a year on surgical site infection surveillance rates in relation to orthopaedic hip surgery to relevant staff and senior management via multidisciplinary meetings. Twice yearly antimicrobial resistance reports were circulated to hospital management and clinical areas. A twice yearly antimicrobial resistance report specifically for antimicrobial prescribers in primary care and nursing homes were circulated to relevant people in the hospital catchment area.

Connolly Hospital participated in a national point prevalence survey of hospital-acquired infections and antimicrobial use in 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.

Since 2009 the Infection Prevention and Control Team had performed enhanced surveillance in relation to cases of *Clostridium difficile* infection. Reports and recommendations from detailed analyses of *Clostridium difficile* infection cases were shared hospital wide to drive improvements and reduce the likelihood of patients acquiring this infection. Documentation reviewed by inspectors outlined that reports issued as part of the hospital's surveillance programme were provided with a surveillance feedback form which wards were required to complete once reports had been reviewed and discussed at local level.

The Infection Prevention and Control Team conducted audits across the hospital in 2016 in relation to hand hygiene compliance with multidrug-resistant organisms and infection prevention and control guidelines and 'dirty' utility rooms.**

The Hygiene Committee had responsibility for the management of the environment and patient equipment at the hospital. The aim of the committee was to provide a physically clean, comfortable and safe hospital environment. The committee was chaired by the Director of Nursing and produced trended reports on hygiene audits for directorates and departments indicating compliance or improvement requirements. The committee was also responsible for developing quality improvement plans based on trended audit reports. The effectiveness of the Hygiene Committee was monitored through regular review of audit results and by measuring progress against quality improvement plans. Environmental hygiene findings will be discussed in section 2.6.1.

Regular quality and safety walk-rounds were undertaken by hospital management in the hospital and these involved meeting staff and identifying areas for improvement in relation to hospital hygiene and facilities.

** Rooms 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.

Other process measures monitored at the hospital included nursing metrics and care bundle implementation and hand hygiene. Findings in this regard will be presented in section 2.5.1.

2.2 Risk management

Line of enquiry 1.2

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

The hospital had systems in place to identify and manage risk in relation to the prevention and control of healthcare-associated infection. Hospital management informed inspectors that it was hospital policy to report incidents related to the prevention and control of healthcare-associated infection on the hospital incident management system.

Inspectors were informed that the hospital risk manager provided regular information on relevant incidents and risks to the Infection Prevention and Control Team and Committee. Minutes of infection prevention and control committee meetings outlined that updates in respect of the hospital's corporate risk register^{††} and infection prevention and control risks were discussed. The risk manager and consultant microbiologist attended quality and safety executive committee meetings where infection prevention and control risks were escalated if required and discussed. Inspectors were informed that risks that could not be mitigated at local level were escalated to the RCSI hospital group in line with HSE risk management policy.

Risks in relation to the prevention and control of healthcare-associated infection recorded in the hospital's corporate risk register included the following:

- increased risk of hospital-acquired infection due to the use of additional bed capacity on in-patient wards
- inadequate information technology resources to fully support the tracking of patient movement through hospital beds by the Infection Prevention and Control Team
- potential risk of spread of CPE due to insufficient laboratory resources to facilitate national microbiological screening recommendations.

To address identified risks in relation to infection prevention and control, the hospital had implemented a number of control measures.

Inspectors were told that the hospital had appointed a discharge co-ordinator in January 2016 to manage bed capacity and patient flow. During times of full capacity at the hospital, daily escalation meetings were convened to discuss the placement of

^{††} A risk register is a database of assessed risks that any organisation faces at any one time. The risk register provides management with a high level overview of the hospital's risk status at a particular point in time and can be used as an active tool for the monitoring of actions to be taken to mitigate risk.

patients in the hospital. This included daily discussion with infection prevention and control team members to discuss the placement of patients with transmissible infection. Delayed discharge meetings were held every week at the hospital to monitor the progress of any issues identified. Furthermore, an additional ward was opened in January 2016 with capacity for 16 beds.

During this inspection, inspectors observed that both wards visited were operating at full capacity and both wards had one extra patient admitted to an already full ward. Inspectors were informed that this practice was in line with the hospital bed escalation protocol when there was increased demand for inpatient beds.

Hospital management informed inspectors that plans were in place to upgrade the current computer software system in January 2018 to facilitate tracking of patient movement through hospital beds. Additional risks in relation to infection prevention and control which were outlined by hospital management and the Infection Prevention and Control Team on the day of inspection included:

- insufficient isolation facilities
- a lack of isolation rooms with specialised ventilation for the isolation of patients with airborne infection at the hospital.

The hospital site development plan included the addition of 300 single rooms. However, there was no agreed funding or timeframe for this development at the time of this inspection. Inspectors were informed that plans to upgrade the intensive care unit to include an isolation room with specialised ventilation were at design stage.

Risks in relation to invasive aspergillosis during dust generating construction works ongoing at the hospital were also included in the corporate risk register. A working group had been established in January 2017 to address this risk. This issue will be discussed in section 2.6.4 of the report.

Minutes of Quality and Safety Executive meetings showed that infection prevention and control risks and issues raised by the team were discussed.

2.3 Policies, procedures and guidelines

Line of enquiry 2

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

The Infection Prevention and Control Team had developed a suite of policies, procedures and guidelines in relation to infection prevention and control which included standard precautions, transmission-based precautions and invasive-device related infection. It was practice that hospital policies in relation to infection prevention and control were approved by the Infection Prevention and Control Committee.

Infection prevention and control policies, procedures and guidelines were available for hospital staff in both hard copy in each clinical area and electronically on the hospital intranet. Inspectors found that hard copies of policies procedures and guidelines corresponded with electronic versions available.

Current HSE policy states that hospital policies, procedures and guidelines should be reviewed every three years.³ The Infection Prevention and Control Team had a programme for revision of core infection prevention and control guidelines which was outlined in the infection prevention and control 2016 annual report. The report outlined that a number of policies procedures and guidelines were under review at the time of inspection. All policies reviewed by inspectors in relation to infection prevention and control were up-to-date except a policy in relation to intravascular devices which was due for review at the time of inspection. It is recommended that the implementation of care bundles is included in subsequent revision of policies were appropriate.

The hospital had recently devised a number of standard operating procedures for staff on the cleaning, decommissioning and ordering of patient commodes. The use of a manual document control system for hospital policies, procedures and guidelines was identified as a risk on the hospital's risk register. Hospital management told inspectors that they were planning to develop an electronic document management system at the hospital.

2.4 Staff training and education

Line of enquiry 3

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

National hand hygiene guidelines recommend that hand hygiene training should be mandatory for relevant staff at induction and every two years thereafter.⁴

Staff at Connolly Hospital were required to complete hand hygiene training as part of infection prevention and control training on an annual basis. The Infection Prevention and Control Team had a defined monthly schedule in place for hand hygiene and infection prevention and control training. This training included standard and transmission-based precautions, hand hygiene, personal protective equipment and equipment cleaning and aseptic non-touch technique. It was reported that infection prevention and control training provided at the hospital was aligned to the national framework for such knowledge and skills.⁵ In addition, staff had access to a HSE eLearning programme for hand hygiene.

The Infection Prevention and Control Team recorded and monitored staff attendance at infection prevention and control education sessions. The hospital established a key performance indicator of providing infection prevention and control training to 90 staff per month and had achieved this for quarter one, two and three of 2017. In the clinical areas inspected, 100% of staff in both the specialist surgical ward and the general surgical ward had attended mandatory infection prevention and control training including hand hygiene training in the previous year.

Infection prevention and control training sessions were delivered at general induction sessions for new staff by the Infection Prevention and Control Team of which six sessions had been provided during 2016. The Consultant Microbiologist also provided infection prevention and control training and antimicrobial stewardship training for new non consultant hospital doctors at induction.

The Infection Prevention and Control Team circulated a quarterly infection prevention and control newsletter to hospital staff as an additional educational resource. Information leaflets about preventing the spread of infection for patients and about multidrug-resistant organisms were made available to staff, patients and visitors throughout the hospital. The team held regular hand hygiene awareness days to promote the importance of good hand hygiene within the hospital. The team also contributed to medical education sessions such as intern teaching, clinical team-based teaching and Emergency Department training.

The hospital had developed an infection prevention and control link practitioner programme which included all disciplines within the hospital. The aim of the programme was to enhance infection prevention and control training throughout the hospital. A number of hospital staff had been trained as local hand hygiene champions and auditors and supported the introduction of hand hygiene audits within clinical areas.

2.5 Implementation of evidence-based and best practice

Line of enquiry 4.1

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

2.5.1 Prevention of invasive device-related infection

Care bundles^{††} to reduce the risk of different types of infection have been introduced across many health services over the past number of years, and there have been a number of guidelines^{6,7,8} published in recent years recommending their introduction across the Irish health system.

Care bundles for peripheral vascular catheters, central vascular catheters and urinary catheters had been implemented throughout Connolly Hospital. Weekly auditing of these care bundles was undertaken by clinical area staff and results were overseen by the Infection Prevention and Control Team.

The Infection Prevention and Control Team provided feedback to the individual clinical areas and on the overall hospital's performance with care bundle implementation on a quarterly basis. Care bundle audit results for quarter three 2017 showed an overall hospital compliance rate of 91% with peripheral vascular care bundle implementation, 96% with central vascular catheter care bundle implementation and 95% compliance with urinary catheter care bundles. This shows a need for further improvement in some clinical areas as all care bundle elements should be consistently implemented all the time.

Documentation reviewed by inspectors showed that the specialist surgical ward had an overall compliance score of 100% with central vascular catheter care bundles implementation and 92% compliance with peripheral vascular catheter care bundle implementation in quarter three 2017. Urinary catheter care compliance was recorded at 100% for the same period.

The general surgical ward had an overall compliance rate of 100% with central vascular catheter care bundle implementation and 99% compliance with peripheral vascular catheter care bundle implementation. Urinary catheter care compliance was also 100% for the same period. These results demonstrate a strong commitment to the implementation of care bundles in both ward areas in line with national guidelines.

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

2.5.2 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.^{9,10,11} 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} Other health systems have advanced the surveillance of healthcare-associated infection to the benefit of both patients and health service providers by demonstrating reductions in these type of infections.^{15,16}

A surveillance programme of intensive care unit-acquired bloodstream infection was in place at the hospital. Prospective data on positive blood cultures and central vascular catheter tip cultures from patients in the intensive care unit were entered on a weekly surveillance form by the Consultant Microbiologist and staff also completed the necessary supporting data.

Limited surgical site surveillance among patients following orthopaedic surgery for fractured neck of femur had been carried out by the Orthopaedic team and the Infection Prevention and Control Team at the hospital since July 2011. The information gathered was used to assess the quality of the service provided to patients. Surveillance data was gathered for the duration of in-patient stay only and not for 30 days post-operatively as recommended. The hospital should look to expand the program of surgical site infection surveillance. It is acknowledged that additional resources would be required to do so.

Surveillance of catheter-associated urinary tract infection and ventilator-associated pneumonia was not performed at the hospital.

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

Line of enquiry 4.2

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

2.6.1 Preventing the spread of antimicrobial resistant organisms

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

Hospital isolation facilities

Hospital managers told inspectors that there were 322 patient beds at Connolly Hospital. This included inpatient beds, day case beds and long term care facility beds. On the day of inspection 249 in-patient beds were occupied. The hospital had 46 single rooms all of which had en-suite facilities. The hospital did not have any isolation rooms with specialised ventilation for patients with airborne infection. On the day of inspection 49 inpatients required single room isolation of which 45 were isolated in single rooms. The remaining 4 patients for whom isolation was indicated were accommodated with patients who did not require isolation indicating that there were insufficient single rooms at the hospital to accommodate all patients requiring transmission-based precautions on the day of inspection. Inspectors were informed that an outbreak of hospital acquired VRE infection had been identified at the hospital at the time of this inspection.

During this inspection, HIQA observed that an ancillary treatment room was used in each of the two clinical areas inspected to accommodate patients in accordance with the hospital escalation policy to deal with Emergency Department overcrowding. The practice of accommodating extra patients on fully occupied wards should not be regarded as a suitable long term arrangement for dealing with hospital overcrowding.

The hospital had some systems in place to identify patients with transmissible infection at the time of admission to hospital. The Infection Prevention and Control and Bed Management Teams at the hospital informed staff if isolation facilities were required for patients admitted so that appropriate accommodation could be arranged for patients. Nursing admission and transfer records facilitated the identification of infection prevention and control risks. In addition, patient healthcare records were discreetly labelled to alert staff when patients previously colonised or infected with a

transmissible organism were readmitted to hospital. However, inspectors were informed in one of the clinical areas inspected that hard copy lists with information relating to patients due for admission did not clearly identify patients who might require isolation precautions. This should be reviewed.

Screening of patients for antimicrobial resistant bacteria was largely performed in line with hospital policy. However, it was reported to inspectors in one of the clinical areas inspected that patients transferred from other wards within the hospital were screened for antimicrobial-resistant organisms. It is recommended that this practice is reviewed.

Specialist surgical ward

The specialist surgical ward inspected comprised 31 beds which included four six-bedded rooms and seven single rooms all with en-suite facilities. All patients requiring isolation in the ward were appropriately accommodated in single ensuite rooms on the day of inspection. Dedicated nursing staff were assigned to care for patients requiring isolation precautions and designated housekeeping staff were assigned to clean isolation rooms.

The patient environment and patient equipment was visibly clean in the specialist surgical ward. Opportunities for improvement were observed in relation to storage of patient equipment. Inspectors noted that patient equipment that had been cleaned was stored within a treatment room in which a patient was accommodated. Patient equipment was also stored on part of the ward corridor. It is recommended that patient equipment that is not in use is stored in a designated store room.

Hygiene audits performed locally in the specialist surgical ward showed an average compliance rate of 93% with desirable hygiene standards from January to December 2017.

General surgical ward

The general surgical ward inspected comprised 31 beds which included four six-bedded rooms and seven single rooms all with en-suite facilities.

On the day of inspection, all patients who required transmission-based precautions were appropriately isolated in single rooms. Inspectors were informed that dedicated nursing staff was assigned to the isolation rooms. It is recommended that designated patient equipment is made available where possible for patients in isolation to prevent the risk of cross infection. Signage to communicate the need for transmission-based precautions was not in place in one room occupied by a patient requiring isolation.

A patient information board for staff showed that patients who required transmission-based precautions were identified with isolation alerts. In addition, additional signage denoted that for patient safety reasons, doors to two isolation rooms could be kept open as determined by a local risk assessment. Some additional isolation room doors were also open which was highlighted to staff and addressed at the time of inspection.

Overall, patient equipment in this ward was generally clean with some exceptions. Patient armchairs, a resuscitation trolley and a portable weighing scales stored on the ward corridor were dusty. There were some inconsistencies in relation to labelling of clean items. A review of patient equipment cleaning checklists and labels on equipment showed that patient equipment hygiene was not fully aligned with national minimum cleaning frequencies for high risk areas.

Similar to the specialist surgical ward inspected, opportunities for improvement were observed in relation to storage of patient equipment. Inspectors noted that patient equipment that had been cleaned was stored within a treatment room in which a patient was accommodated. Patient equipment was also stored on part of the ward corridor and in a toilet facility, this should be reviewed. Again, it is recommended that patient equipment that is not in use is stored in a designated store room.

Environmental and patient equipment hygiene audit overall scores for January to April and May to August 2017 showed 93% and 95% compliance with desirable standards respectively. An overview environmental audit report showed that the surgical ward achieved an average overall compliance rate of 85% with desirable standards in 2017.

2.6.2 Safe injection practice

Inspectors looked at implementation of aspects of standard precautions to assess safe injection practice in the clinical areas inspected.

Specialist surgical ward

Staff who spoke with inspectors were able to describe recommended practice in relation to giving injections safely. The ward had a designated area for medication preparation in the treatment room in line with best practice. Multi-dose vials and insulin pens were designated single patient use as appropriate.

Some opportunities for improvement were identified in that a sharps container located beside the medication preparation area was overfilled. This was immediately addressed by staff during the inspection. Used sharps should be managed in line with national guidelines.¹⁷ In addition the hospital should review and standardise procedures for the decontamination of intravenous medication trays as some variance in practice was observed on the day of inspection.

A medication fridge in the clinical room did not appear to have been cleaned for some time. This should be included in the ward cleaning schedule. A clinical hand wash sink was available in this room but alcohol hand rub was not available in the clean utility room at the time of inspection. Alcohol-based hand rub is considered the gold standard for hand hygiene and should be available for staff use in this area.

General surgical ward

Staff who spoke with inspectors were able to describe recommended safe injection practices. There was a designated medication preparation area clearly defined with relevant signage. A clinical hand wash sink was available in the medication preparation room, however there was no alcohol hand gel dispenser available at the time of inspection.

Inspectors were informed that only supplies required for a single patient blood glucose measurement was taken to the point of care. A standard operating procedure for the management of equipment was fixed to each glucometer container. A small red stain was observed on one container which was addressed immediately by staff.

Opportunities for improvement were also identified in this clinical area in relation to the management and decontamination of procedure trays used for injection administration. The hospital should review practices in this regard. A number of sharps containers were full and did not have temporary closures engaged or were not sealed closed at the time of inspection.

2.6.3 Other measures to prevent the transmission of infection

Hand hygiene

Essential moments of the World Health Organisation (WHO) multimodal improvement strategy were in place at Connolly Hospital. The hospital participates in the national hand hygiene audits, results of which are published twice a year. The hospital achieved 93% hand hygiene compliance in June/July 2017 which was greater than the HSE's desirable target of 90% hand hygiene compliance among staff. This was an increase from previous measurement periods in 2016 where compliance was 87% for October/November 2016. Documentation reviewed by inspectors outlined that a mobile machine to facilitate hand hygiene training and technique assessment was rotated throughout clinical areas at the hospital in 2016 to provide additional education and practice for staff.

Inspectors were informed that monthly hand hygiene audits were performed by locally trained auditors in some areas. Clinical areas were required to produce action plans in response to compliance rates of less than 90% in local audits.

Hand hygiene audits in the specialist surgical ward inspected showed that staff in this area achieved 100% compliance for October 2017. Staff in the general surgical ward achieved 90% hand hygiene compliance in September 2017.

Hand hygiene compliance results were openly displayed on a 'knowing how we are doing' notice board in the ward corridors of the clinical areas inspected. One ward inspected nominated a designated staff member each day to promote good hand hygiene. The nominated staff member was named on the ward notice board and also wore a 'hand hygiene champion' badge to show both patients and staff their role in promoting good practice.

Outbreak management

At the time of this inspection, hospital management told inspectors that a confirmed outbreak of Vancomycin Resistant-*Enterococci* (VRE) was being managed at the hospital. Inspectors were informed that patients known to be colonised with VRE were confined in one ward. There was also a number of recently confirmed community and hospital acquired influenza cases at the hospital.

The hospital had experienced a number of outbreaks in 2016 which were documented in the 2016 infection prevention and control report. Outbreak reports reviewed by inspectors showed that there had been an increase in the overall number of outbreaks at the hospital in 2017 in particular in relation to VRE.

Outbreak reports produced by the Infection Prevention and Control Team outlined actions taken to manage these outbreaks as appropriate. Inspectors were informed that the hospital had implemented a number of control measures to prevent outbreaks of infection and these included assigning dedicated staff where possible to care for patients colonised with resistant bacteria. Additionally, the hospital worked to increase awareness about infection prevention to patients, visitors and staff through promoting hand hygiene and displaying relevant posters.

Hospital management demonstrated an awareness of the challenges faced by the hospital to effectively prevent outbreaks of infection which included insufficient isolation facilities and high bed occupancy rates.

Prevention of water-borne infection

The hospital Water Safety Advisory Group, chaired by the Estates Manager, provided oversight of the management of water services at the hospital. Documentation reviewed by inspectors outlined that a legionella risk assessment was last completed at the hospital in December 2014. National guidelines recommend that a legionella risk assessment is performed. This risk assessment should be reviewed on an annual basis and independently reviewed every two years. Minutes of a Water Safety Advisory Group meeting in November 2017 addressed the need to seek funding for a

legionella risk assessment in 2018. In the interim, the hospital should ensure that any risk in relation to control measures are effectively monitored to ensure Legionella control is managed in line with current Irish national guidelines.¹⁸

Inspectors were informed that an internal monitoring programme and a surveillance programme by an external contractor for legionella were in place at the hospital. The hospital had implemented a number of control measures in relation to legionella prevention such as a water treatment system, and routine flushing of less frequently used outlets. Regular water sampling was performed and results were overseen by the Consultant Microbiologist. The hospital had also developed a policy on control of legionella for the hospital.

2.6.4 Prevention of invasive aspergillosis during construction work

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

On the day of inspection, measures to reduce the risk of invasive aspergillosis during building works were reviewed. A hospital project to extend the interventional radiology department was in progress and a separate construction project to build a paediatric satellite centre as part of the National Children's Hospital project was also taken place on the grounds of the hospital. Inspectors were informed that the Infection Prevention and Control Team undertook a risk assessment prior to commencement of these works and provided advice in relation to control measures.

Documentation reviewed by inspectors showed that control measures had been clearly identified and inspectors observed that a number of dust control measures were in place on the day of inspection.

Hospital management informed inspectors that the Infection Prevention and Control Team provided informal education sessions for hospital staff in relation to aspergillosis prevention.

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

2.7 Quality improvement initiatives

Multiple projects to enhance the prevention and control of healthcare-associated infection had been undertaken by staff at the hospital. These included some of the following:

- The hospital implemented a quality improvement initiative to prompt frontline staff to stop and assess whether the patient they are caring for needs an invasive vascular device and encourages staff to remove invasive devices as soon as they are no longer necessary. A retrospective pre-implementation audit completed in June/July 2017 identified some good practices and identified recommendations to improve practices as well as additional interventions required to further develop the quality initiative.
- The hospital had devised their own Connolly Hospital Isolation Priority Score (CHIPS) to assist ward, department and bed management staff to prioritise the need of isolation and the use of single rooms to reduce the risk of cross contamination.
- The Infection Prevention and Control Team were awarded a Certificate of Excellence from the Connolly Hospital Learning from Excellence Group in appreciation of the systems analysis carried out on all hospital associated *Clostridium difficile* infections in the hospital.
- The introduction of a new electronic hospital hygiene auditing system facilitated regular trending, analysis and oversight of hygiene audit results at both local and senior management level.

2.8 Progress since the previous HIQA inspection

HIQA reviewed the quality improvement plan¹⁹ developed by the hospital following the 2016 HIQA infection prevention and control inspection. The hospital reported that the majority of the issues identified by HIQA during the last inspection had been addressed.

The hospital outlined that outstanding issues in relation to a lack of rooms with specialised ventilation settings for the purpose of isolating patients with airborne infection in the intensive care unit were being prioritised in the hospital's budget estimates for 2018. An on-going refurbishment and maintenance program was in place and involved the upgrade of clinical hand wash sinks and ward bathrooms and furniture replacement. Furthermore, a bedpan washer replacement programme was underway throughout the hospital with plans to replace all bedpan washers by 2018. Hospital management reported that plans were underway to move the waste holding area at the hospital.

3. Conclusion

Overall, inspectors found that there were established governance and management arrangements around the prevention and control of healthcare-associated infection in Connolly Hospital Blanchardstown.

Hospital management and the Infection Prevention and Control Team had developed and implemented a detailed monitoring and evaluation system which provided good oversight of the effectiveness of the infection prevention and control programme at the hospital.

The hospital had systems in place to identify risks in relation to the prevention and control of healthcare-associated infections. A number of outbreaks of infection had occurred at the hospital in both 2016 and 2017. Potential contributory factors such as insufficient isolation facilities and insufficient bed capacity need to be reviewed and addressed going forward.

Hospital staff were supported to implement best practice through the availability of a comprehensive up-to-date suite of infection prevention and control policies, procedures and guidelines.

Overall the patient environment was generally clean in the areas inspected. However, it is recommended that storage and management of patient equipment is reviewed and cleaning specifications are revised to ensure that they are aligned to national minimum cleaning frequencies for higher risk areas.

The hospital exceeded the national hand hygiene target of 90% compliance in June/July 2017 and should continue working towards sustaining full compliance with national hand hygiene targets.

The hospital had implemented a number of evidence-based care bundles and have been able to identify areas for improvement. The hospital should continue with their work to date to ensure care bundles are consistently implemented throughout the hospital and use existing audit and feedback programmes to drive this.

The hospital should look to allocate the resources necessary to expand and build on the work of the current surgical site surveillance programme.

The completion of a legionella risk assessment needs to be prioritised at the hospital to ensure that potential risks associated with water-borne infections are effectively monitored and managed in line with current Irish national guidelines.

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

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

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