Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Report of the unannounced inspection at Louth County Hospital, Dundalk.

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: 06 October 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 Louth County Hospital, Dundalk by Authorised Persons from HIQA; Noreen Flannelly-Kinsella and Emma Cooke. The inspection was carried out on the 06 October 2017 between 09:15hrs and 16:15hrs.

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

During this inspection inspectors spoke with hospital managers and staff, and members of the Infection Prevention and Control Team. Inspectors requested and reviewed documentation and data and observed practice within the clinical environment in one clinical area:

- A medical 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 and control of transmission of antimicrobial-resistant bacteria (Section 2.6.1)
- Safe injection practice (Section 2.6.2)

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 Louth County Hospital, Dundalk

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

Louth County Hospital, Dundalk is a statutory hospital owned and managed by the Health Service Executive (HSE) and together with Our Lady of Lourdes Hospital, Drogheda forms Louth Hospitals which is part of the Royal College of Surgeons in Ireland (RCSI) Hospital Group governance structure.

The Hospital Manager at Louth County Hospital was accountable for the overall management and monitoring of the prevention and control of healthcare-associated infection at the hospital and reported into the General Manager for Louth Hospitals. The General Manager for Louth Hospitals reported to and attended monthly performance meetings with the Chief Executive Officer of the RCSI Hospital Group.

The infection prevention and control service at Louth County Hospital was overseen by the Louth Hospitals' Infection Prevention and Control Steering Group and Senior Management Team. The Infection Prevention and Control Team was a joint team for Louth Hospitals. The Louth Hospitals' Infection Prevention and Control Team comprised two whole time equivalent (WTE)[*] consultant microbiologists and 4.4 WTE infection prevention and control nurses of which a 0.5 WTE clinical nurse specialist worked on site at Louth County Hospital.

The Infection Prevention and Control Team was led by a consultant microbiologist based at Our Lady of Lourdes Hospital, Drogheda. Clinical microbiology advice was available to clinical staff in Louth County Hospital by telephone on a 24-hour basis seven-days-a week, in line with National Standards. The microbiology department in Our Lady of Lourdes Hospital, Drogheda was accredited by the Irish National Accreditation Board.

[*] 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 team also comprised one surveillance scientist and one antimicrobial pharmacist based at Our Lady of Lourdes Hospital, Drogheda. Louth County Hospital did not have a dedicated antimicrobial stewardship pharmacist, however, advice was available from a clinical pharmacist based at the hospital. The clinical pharmacist was also a member of the Louth Hospitals' Antimicrobial Stewardship Committee. This committee reported into the Louth Hospitals' Infection Prevention and Control Committee.

The Louth Hospitals' Infection Prevention and Control Committee served Louth County Hospital, Dundalk and Our Lady of Lourdes Hospital, Drogheda and met quarterly. The committee was chaired by a consultant microbiologist and an assistant director of nursing represented Louth County Hospital at this committee. Membership also included representatives from community and public health. Standing agenda items included quality and risk, infection prevention and control reports, outbreaks and triggers, hand hygiene, antimicrobial stewardship, estates updates and policies, procedures and guidelines. Minutes of meetings reviewed by inspectors indicated that these issues were monitored and discussed by the committee.

The Infection Prevention and Control Committee reported to the Louth Hospitals' Healthcare Associated Infection Steering Group. This group had been recently convened in July 2017 and was chaired by the Louth Hospitals' General Manager. Membership comprised multiple specialities including risk management, pharmacy and laboratory services, decontamination, hygiene and environmental monitoring services. The purpose of this committee was to provide corporate direction and support to the Louth Hospitals' Infection Prevention and Control Committee. Another function of this committee was to evaluate the effectiveness of the Louth Hospitals' infection prevention and control programme. Quarterly meetings were held and documentation reviewed from the past three meetings showed that meetings followed an agenda, which included feedback and consideration of the following issues:

- infection prevention and control reports including surveillance
- antimicrobial stewardship
- risk management in relation to infection prevention and control
- environmental monitoring services
- environmental hygiene reports
- decontamination of reusable invasive medical devices
- quality improvement plans.

The Louth Hospitals' Healthcare Associated Infection Steering Group reported directly to the Senior Management Team of Louth Hospitals.

Inspectors were informed that the Louth Hospitals' infection and prevention control nurses represented Louth Hospitals at the RCSI Hospital Group infection prevention and control nurses forum. This was a positive move within the group and facilitated enhanced communications with other hospitals across the hospital group.

Monitoring and evaluation

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

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

The Infection Prevention and Control Team also monitored local performance indicators as follows:

- surveillance of 'alert' organisms and 'alert' conditions[†]
- data reported to the European Antimicrobial Resistant Surveillance Network (EARS-Net).[‡]

Surveillance of alert organisms including Methicillin-Resistant *Staphylococcus aureus, Clostridium difficile*, Extended Spectrum Beta-Lactamases, and vancomycin-resistant *Enterococci* was carried out by the infection prevention and control nurse in Louth County Hospital. Surveillance data was reported at weekly Louth Hospitals' infection prevention and control team meetings. These meetings were convened at Our Lady of Lourdes Hospital, Drogheda. The infection prevention and control nurse for Louth County Hospital participated in these meetings via teleconference or attended in person.

Quarterly surveillance reports were presented at the Louth Hospitals' Infection Prevention and Control Committee meeting. These surveillance reports were also presented at the Louth Hospitals' Healthcare Associated Infection Steering Group meeting, the Lead Clinicians Forum and the Executive Management Board meetings.

The hospital had devised a key performance indicator which required staff to isolate patients who presented with gastrointestinal symptoms within two hours of reporting the need to isolate to nursing administration. At the time of inspection this

[†] 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.

information was not being trended. It is recommended that this information is trended going forward in order to identify opportunities for improvement.

Environmental hygiene audits at Louth County Hospital were carried out by the Hygiene Team which included members of the hospital management team, the infection prevention and control nurse and the hygiene services manager. Detailed audit reports included corrective action plans in response to findings. It was reported to inspectors that local self-assessments in relation to infection prevention and control were also carried out at ward level on a quarterly basis and included areas such as linen segregation and safe sharps disposal. The Hygiene Team at Louth County Hospital reported into the Louth Hospitals' Hygiene Services Steering Committee. Hospital hygiene audit results were trended and clearly presented to hospital management in overview reports, which is good practice and facilitates the identification of areas for improvement.

Complaints received from patients in relation to infection prevention and control were referred to the Infection Prevention and Control Team and escalated by the Quality and Risk Manager to the Louth Hospitals' Senior Management Team. Risks that could not be managed at this level were further escalated up to the RCSI Hospital Group.

Weekly quality and safety walk-rounds were undertaken by the Louth County Hospital Manager and Assistant Director of Nursing. These walk-rounds involved meeting with staff, identifying examples of good practice and areas for improvement in relation to hospital hygiene and facilities. Inspectors were informed that findings and outcomes of safety walk-arounds were not formerly recorded which is recommended from an ongoing quality improvement perspective.

Other process measures monitored at the hospital included care bundle implementation and hand hygiene. Findings in this regard will be presented in section 2.5 and 2.6 of this report.

2.2 Risk management

Line of enquiry 1.2

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

Risks in relation to the prevention and control of infection should be identified and effectively mitigated or managed. Louth County Hospital had systems in place to identify and manage risk in relation to the prevention and control of healthcare-associated infection.

A comprehensive infection prevention and control risk register[§] was maintained by the hospital outlining infection prevention and control risks and controls in place to mitigate against identified risks. Risks in relation to infection prevention and control included lack of isolation facilities and inadequate hospital infrastructure. Other risks identified on the register included staffing resource deficiencies such as lack of an onsite hospital-based consultant microbiologist, antimicrobial stewardship pharmacist, and a surveillance scientist.

Hospital management was working to mitigate risks in respect of hospital infrastructure through gradual upgrading and ongoing refurbishment plans of existing facilities. The risk register in respect of infection prevention and control was regularly reviewed and updated and risks were included in the overall hospital risk register. Inspectors were informed that risks which could not be effectively mitigated at a local hospital level were escalated to the Louth Hospitals' Senior Management Team through directorate reporting structures. Hospital management informed inspectors that incidents of healthcare-associated infection were reported as risks through the hospital incident management system.

Incident management forms in Louth County Hospital were completed in respect of infection prevention and control and escalated to nursing administration and evaluated accordingly. Incidents were uploaded to the National Incident Management System (NIMS) by the Hospital Manager. Records reviewed showed that the hospital had recorded a total of eight infection prevention and control related incidents from January to September 2017. Of the eight recorded, five of

[§] 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.

these incidents were associated with a lack of single rooms for patients requiring isolation.

Incidents were discussed at monthly Louth County Hospital incident management team meetings attended by the Louth Hospitals' Quality and Risk Manager. Significant risks were further escalated to the Louth Hospitals' Senior Incident Management Forum based at Our Lady of Lourdes Hospital, Drogheda.

Documentation reviewed by inspectors showed that the Louth Hospitals' Senior Incident Management Forum provided oversight of serious adverse events and incidents in Louth Hospitals. The forum was chaired by the General Manager of Louth Hospitals and meetings were held monthly. The Louth Hospitals' Quality and Risk Manager was also a member of this forum. Terms of reference reviewed by inspectors showed that this oversight group also had responsibility for reporting outcomes, implementing a monitoring plan and recommendations, and identifying learning opportunities and supporting staff involved in adverse incidents and reviews in Louth Hospitals.

2.3 Policies, procedures and guidelines

Line of enquiry 2

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

Inspectors found that the hospital had a comprehensive suite of infection prevention and control policies in relation to standard precautions, transmission-based precautions and the prevention of invasive device-related infection. Hospital policies, procedures and guidelines were made available to staff in both electronic format on the hospital intranet and in hard copy in folders in clinical areas.

The infection prevention and control nurse in Louth County Hospital had implemented a document management system to facilitate document version control. Hospital management informed inspectors that plans to implement an electronic quality management system in relation to infection prevention and control documents were currently under consideration.

Hospital policies relevant to infection prevention and control were ratified by the Infection Prevention and Control Committee, who reported directly to Louth Hospitals' Infection Prevention and Control Steering Group who provided final approval for all policies. Inspectors noted that some policies originated from previous Louth/Meath Hospital Group structures. Going forward there is potential for standardising policies across the RCSI Hospital Group. Such an initiative would also facilitate executive oversight of infection prevention and control policies, procedures and guidelines at hospital group level.

Current HSE policy states that hospital policies, procedures and guidelines should be reviewed every three years[3]. The majority of infection prevention and control policies were up-to-date at the time of inspection apart from outbreak management and aspergillosis which were being updated. Inspectors observed two additional policies in relation to urinary catheters in the hard copy folder which were due for revision. It is recommended that a review of these policies is undertaken to ensure a standardised approach in relation to urinary catheters and that staff have access to the most up-to-date policies.

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] Documentation provided by the hospital showed that hand hygiene training was mandatory for staff at induction and every year thereafter. The infection prevention and control nurse delivered three hand hygiene education sessions per month which incorporated both hand hygiene theory and practical technique training. The hospital had systems in place to monitor and flag when staff were overdue for hand hygiene education.

At the time of inspection, documentation provided to inspectors showed that 93% of relevant hospital staff had undertaken hand hygiene training in 2016. Data breakdown for 2017 showed that 92% of nursing staff and 60% of hospital consultants were up-to-date with hand hygiene training at the time of inspection. Inspectors were informed that targeted education had been provided to consultant staff at the Lead Clinicians Forum in order to improve uptake of hand hygiene training amongst this group. This is a good example for other hospitals and provides positive leadership in this regard.

Infection prevention and control education including standard and transmission-based precautions was mandatory for staff at induction and thereafter every two years. It was reported that the hospital was aligning infection prevention and control education for staff to the national framework for such knowledge and skills.[5] Infection prevention and control education was provided four to five times per year or as required in clinical areas on a needs basis.

Infection prevention and control staff training uptake was presented in an infection prevention and control end of year report. However, the report did not indicate the percentage of staff by staff discipline who had undertaken infection prevention and control training. In order to provide assurance to hospital management that infection prevention and control training had been provided to staff, attendance should be reported in a manner that shows the proportion of relevant staff who received training.

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

Inspectors were informed that care bundles for urinary catheter care and peripheral vascular catheter care had been implemented throughout the hospital in line with national guidelines. In the clinical area inspected peripheral vascular catheter care bundles were performed on a daily basis and collated on a weekly basis. However, documentation provided showed that urinary catheter care bundles were only performed on a weekly basis. Daily assessment of urinary catheters and completion of urinary catheter care bundle should be progressed in line with national guidelines.

Monitoring compliance with care bundles are important process measures for evaluation of catheter-related blood stream infection preventative programmes. Evidence indicates that full compliance with all essential care bundle components improve patient outcomes. Monthly care bundle compliance audits from January to September 2017 showed 100% compliance for both peripheral vascular catheter care and urinary catheter care bundles in the ward inspected which is commendable.

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

Surveillance of catheter-associated urinary tract infection was not performed in Louth County Hospital. Since April 2016, Louth Hospitals had performed surgical site infection surveillance in respect of cholecystectomy and hernia repair in line with internationally recommended case definitions. Patients were followed up post-operatively at 30 days following cholecystectomy surgery and 90 days following hernia repair surgery. Quarterly reports were presented at the Louth Hospitals' surgical site committee meetings.

Surgical site infection surveillance represents good practice and demonstrates a commitment to monitoring quality of care.

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

Measures to prevent the spread of antimicrobial-resistant organisms were reviewed in the clinical area inspected.

Isolation of patients with infection

Patients with suspected or confirmed communicable disease including healthcare-associated infection and multidrug-resistant organisms should be placed in a suitable isolation room, single room or cohort area, in line with national guidelines.[17,18]

The hospital had 61 inpatient beds of which there were 10 single isolation rooms. Four of these isolation rooms had an en-suite toilet. On the day of inspection 10 inpatients required isolation, of which nine were isolated in single rooms. One patient was cohorted in a three-bedded room with patients who were not colonised with a multidrug-resistant organism. Inspectors were informed that an infection prevention and control risk assessment had been completed to support this decision. Overall, there was insufficient capacity at the hospital to accommodate all admitted patients requiring isolation on the day of inspection. This finding was also substantiated by the number of incidents reported in relation to the lack of available isolation rooms on the hospital's incident management system.

At the start of this inspection, inspectors observed that three doors to isolation rooms accommodating patients requiring transmission-based precautions, were open. Isolation room doors should be kept closed, as far as possible otherwise a risk assessment should be performed. This issue was dealt with on the day of inspection once highlighted to staff.

Microbiological screening

Patients were assessed on admission to determine if they had symptoms of infection or if they had a history of being colonised with a transmissible infection. The hospital had a computerised system to identify patients previously colonised or infected with antimicrobial-resistant bacteria.

It was reported that screening of patients for Methicillin-Resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococci* was performed in line with national

guidelines in the hospital. Limited screening was performed in relation to Carbapenemase Producing *Enterobacteriaceae.* Inspectors were informed that as additional resources would be required, Louth Hospitals were exploring options to support full implementation of the national guidelines in relation to screening for Carbapenemase Producing *Enterobacteriaceae.*

The hospital did not have isolation facilities with specialised ventilation required for managing patients with airborne infection. Patients requiring airborne isolation facilities should be managed in a hospital equipped for this purpose.

Environment and patient equipment hygiene

Overall the environment and patient equipment hygiene in the clinical area inspected appeared clean with few exceptions.

Inspectors reviewed overview reports of environmental hygiene audits for the hospital. Trended environmental audit results showed an average compliance of 78%-100% across all clinical areas at the hospital for 2016 and 2017.

Trended patient equipment audit results from September 2016 to October 2017 showed 95% compliance across all clinical areas. The hospital also undertook monthly environmental spot check audits. Audit results for the clinical area inspected showed 98% and 95% compliance with recommended standards for April and June 2017 respectively. Hygiene audit results were discussed at local hospital weekly hygiene meetings and presented at the Louth Hospitals' Hygiene Steering Group Committee meetings held every two weeks. Where deficiencies were identified, these were addressed through the implementation of a quality improvement plan. In addition, environmental and patient equipment peer audits were also performed in the hospital by staff from Our Lady of Lourdes Hospital, Drogheda.

A hospital wide mattress audit was completed in January 2016. As part of this audit 51 mattresses were assessed for damage, wear and tear. The audit demonstrated that practices in relation to care and decontamination of mattresses was compliant with the relevant hospital policy.

2.6.2 Safe injection practice

Inspectors reviewed elements of safe injection practice and implementation of aspects of standard precautions in the medical ward inspected. A staff member who spoke with inspectors was able to describe recommended safe injection practices.

The medical ward had a small clinical room which had a designated area for medication preparation however this area was adjacent to a hand hygiene sink. It is recommended that medications are not prepared near sinks as this can present a risk of splash contamination of clean and sterile items. Pharmacy and drug order

books were also stored on this area. In addition, inspectors found that sterile supplies were stored in open units underneath and adjacent to the sink. Sterile supplies should be stored so that the risk of inadvertent splash contamination of sterile supplies is avoided.

2.6.3 Other measures to prevent the transmission of infection

Hand Hygiene

Louth County Hospital participates in the national hand hygiene audits, results of which are published twice per year. The hospital exceeded the required Health Service Executive (HSE) national hand hygiene target of 90% for May/June 2017 and October/November 2016 with compliance rates of 92.9% and 91.9% respectively. The Infection Prevention and Control Team developed action plans in response to areas that did not achieve a hand hygiene compliance rate of 90% in line with current national performance indicators.

Local hand hygiene compliance audit results in the medical ward inspected showed 97% compliance in June 2017. Audits in relation to hand hygiene facilities were also performed by the infection prevention and control clinical nurse specialist. Audit findings showed that the medical ward inspected achieved 76% compliance with hand hygiene facilities at beginning of June 2017. These facilities were re-audited at the end of the month and records reviewed by inspectors demonstrated an improvement with 94% compliance.

Outbreak Management

Inspectors were informed that there were no outbreaks of infection in the past few months prior to this inspection. Documentation reviewed by inspectors showed that the hospital had experienced an increased incidence of Methicillin-resistant *Staphylococcus aureus* (MRSA) in one clinical area in March 2017. A review of a report in relation to this increased incidence completed by the hospital showed that daily incidence meetings were convened by the Infection Prevention and Control Team. These meetings were attended by multi-disciplinary members during the first week and at regular intervals thereafter. Factors identified by the hospital as contributing to this increase included deficiencies in relation to adherence to screening criteria, inadequate bed spacing between patient beds, lack of suitable en-suite facilities and poor adherence to hand hygiene practices. The hospital adopted a multi-faceted approach to the management of the increased number of cases. Findings from audits undertaken at this time such as hand hygiene, antimicrobial stewardship and bed spacing were used to inform the control measures implemented to reduce the spread of infection.

Prevention of water-borne infection

National guidelines recommend that a Legionella risk assessment is performed. This risk assessment should be reviewed on an annual basis or if significant changes to the water distribution system is detected and independently audited every two years thereafter.[19]

A formal Legionella site risk assessment had been performed at the hospital in 2015. It was reported to inspectors that the hospital was undertaking a Legionella site risk assessment shortly. The hospital had implemented a number of control measures in relation to Legionella prevention such as routine flushing and water sampling schedules.

Governance and oversight in relation to water-borne infections in the hospital was the responsibility of the Louth Hospitals' Environmental Monitoring Committee. Results were reported to the Infection Prevention and Control Committee on a quarterly basis.

The infection prevention and control nurse in collaboration with other relevant disciplines reviewed Legionella water sampling results, provided advice on necessary control measures where positive results were obtained and advised on re-sampling and on on-going preventative measures.

2.7 Quality improvement initiatives

Hospital management were asked to provide inspectors with information about any quality improvement initiatives that had been implemented in relation to the prevention and control of infection at the hospital. A number of initiatives aimed at optimising infection prevention and control were implemented at the hospital which included some of the following:

- A staff hand hygiene quiz was carried out to raise awareness and increase knowledge of hand hygiene evidence-based practices. Sixty-three staff completed the quiz with the majority demonstrating good knowledge of hand hygiene theory. The findings were incorporated into hand hygiene educational sessions.
- A service user perception survey of healthcare workers hand hygiene practices was conducted amongst inpatients and outpatient service users. Positive findings demonstrated that hand hygiene promotion posters were visible and encouraged the usage of alcohol-based hand foam amongst service users on entry to the hospital.

2.8 Progress since the previous HIQA inspection

HIQA reviewed the quality improvement plan[20] developed by the hospital following the 2015 inspection against the National Standards. The majority of issues identified by HIQA during the last inspection had been addressed at the hospital including the following:

- Nine clinical hand washing sinks were replaced and two clinical hand washing sinks upgraded to conform to national guidelines.4 A priority sink replacement list was in place for 2017 to address outstanding areas that required appropriate hand hygiene facilities.
- Inappropriate storage of items in sluice rooms and linen rooms had been addressed through regular environmental auditing.

Infrastructural deficiencies, which could not be adequately mitigated locally, had been included in the minor Capital Plan 2017 for Louth Hospitals, which were partially funded. Inspectors were informed that proposals for the remaining outstanding areas will be resubmitted in the 2018 submission process.

The issue of inadequate bed spacing between beds had been escalated to the Louth Hospitals' Senior Management Team. However, actions outlined in the quality improvement plan indicated that the hospital is not in a position to reduce bed numbers on the ward due to capacity demands.

A less than ideal hospital infrastructure, a lack of isolation rooms and bed capacity issues hinder the management of and contribute to the onset of outbreaks of infection. It is recommended that the hospital continues to monitor this and escalate accordingly as lack of appropriate bed spacing between patient beds can impact on adequate infection prevention and control measures particularly during outbreaks.[21]

3. Conclusion

Effective leadership, governance and management arrangements were evident around the prevention and control of healthcare-associated infection at Louth County Hospital. Risks identified in relation to prevention and control of healthcare-associated infections were monitored, recorded, evaluated and escalated up through hospital group level governance structures as appropriate. The hospital management team was focused on monitoring structures, processes and outcomes and implementing evidence-based practice to inform any improvements in relation to prevention and control of healthcare-associated infection at the hospital. Targeted surgical site infection surveillance was performed at Louth Hospitals and represents good practice and demonstrates a commitment to monitoring quality of care.

The hospital had implemented evidence-based care bundles for peripheral vascular devices and urinary catheters and performed audit of care bundle implementation. Louth County Hospital needs to continue to build on the progress to date to fully implement urinary catheter care bundles in line with national guidelines. The hospital has exceeded the national performance indicator in relation to hand hygiene compliance which is commendable. The majority of hospital policies procedures and guidelines in relation to the prevention and control of infection were in place and up-to-date.

Overall, the environment in the clinical area inspected was generally clean with few exceptions. There was good ownership in relation to hospital hygiene and evidence of clear responsibilities within the clinical area inspected. An electronic hospital auditing system facilitated regular trending, analysis and oversight of audit results at both local and senior management level.

HIQA found that the hospital is working towards improving the patient care environment. Notwithstanding this, factors in relation to broader hospital infrastructure, a lack of available isolation rooms and appropriate hand hygiene facilities which can contribute to the onset of outbreaks of infection remains a challenge for the hospital. In order to meet modern day infection prevention and control and hospital infrastructural standards, the hospital needs to be supported both at group and national level to address deficiencies going forward. It is recommended that the hospital continues to assess and manage the impact of these factors and escalate accordingly as part of their ongoing infection prevention and control programme.

It is recommended that Louth County Hospital continues to work with Louth Hospitals to progress with the implementation of the national guidelines for screening patients for Carbapenemase Producing *Enterobacteriaceae.*

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5. Appendix 1

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

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

For further information please contact:

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

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