



**Health
Information
and Quality
Authority**

An tÚdarás Um Fhaisnéis
agus Cáilíocht Sláinte

Report of the unannounced inspection at the Midland Regional Hospital Tullamore

Monitoring programme for unannounced inspections undertaken
against the National Standards for the Prevention and Control of
Healthcare Associated Infections

Date of on-site inspection: 16 June 2016

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 and support services in Ireland. HIQA's role is to develop standards, inspect and review health and social care and support services, and support informed decisions on how services are delivered. HIQA's ultimate aim is to safeguard people using services and improve the quality and safety of 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 the Minister for Children and Youth Affairs, the Health Information and Quality Authority 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 and support services in Ireland.
- **Regulation** – Registering and inspecting designated centres.
- **Monitoring Children's Services** – Monitoring and inspecting children's social services.
- **Monitoring Healthcare Quality and Safety** – Monitoring the quality and safety 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 and support services.

Table of Contents

1. Introduction	1
2. Findings	2
2.1 Progress since the last unannounced inspection on 28 May 2015	3
2.2 Key findings of the unannounced inspection on 16 June 2016.....	6
2.3 Key findings relating to hand hygiene.....	7
2.4 Key findings relating to infection prevention care bundles.....	9
3. Summary	10
4. Next steps.....	11
5. References	12

Appendix 1- Copy of letter issued to the Midland Regional Hospital Tullamore following the unannounced inspection on 16 June 2016.

Appendix 2- Copy of the response received from the Midland Regional Hospital Tullamore in response to letter received from HIQA following the unannounced inspection on 16 June 2016.

1. Introduction

The Health Information and Quality Authority (HIQA) carries out unannounced inspections in public acute hospitals in Ireland to monitor compliance with the *National Standards for the Prevention and Control of Healthcare Associated Infections*.¹ The inspection approach taken by HIQA is outlined in guidance available on HIQA's website, www.hiqa.ie – *Guide: Monitoring Programme for unannounced inspections undertaken against the National Standards for the Prevention and Control of Healthcare Associated Infections*.²

The aim of unannounced inspections is to assess hygiene in the hospital as observed by the inspection team and experienced by patients at any given time. It focuses specifically on the observation of the day-to-day delivery of services and in particular environment and equipment cleanliness and compliance with hand hygiene practice. In addition, following the publication of the 2015 *Guide: Monitoring Programme for unannounced inspections undertaken against the National Standards for the Prevention and Control of Healthcare Associated Infections*,² HIQA began assessing practice around the implementation of infection prevention care bundles. In particular this monitoring will focus upon peripheral vascular catheter and urinary catheter care bundles, but monitoring of performance may include other care bundles as recommended in prior national guidelines^{3,4} and international best practice.⁵

Assessment of performance will focus on the observation of the day-to-day delivery² of hygiene services, in particular environmental and hand hygiene and the implementation of care bundles for the prevention of device-related infections under the following Standards:

- Standard 3: The physical environment, facilities and resources are developed and managed to minimize the risk of service users, staff and visitors acquiring a Healthcare Associated Infection.
- Standard 6: Hand hygiene practices that prevent, control and reduce the risk of spread of Healthcare Associated Infections are in place.
- Standard 8: Invasive medical device-related infections are prevented or reduced.

Other standards may be observed and reported on if concerns arise during the course of an inspection. It is important to note that the standards are not assessed in their entirety during an unannounced inspection and therefore findings reported are related to a particular criterion within a standard which was observed during an inspection. HIQA uses hygiene observation tools to gather information about the cleanliness of the environment and equipment as well as monitoring hand hygiene practice in one to three clinical areas depending on the size of the hospital. HIQA's approach to an unannounced inspection against these standards includes provision

for re-inspection within six weeks if standards on the day of inspection are poor. This aims to drive improvement between inspections. In addition, in 2016, unannounced inspections will aim to identify progress made at each hospital since the previous unannounced inspection conducted in 2015.

An unannounced inspection was carried out at the Midland Regional Hospital Tullamore on 16 June 2016 by Authorized Persons from HIQA, Aileen O' Brien, Noreen Flannelly-Kinsella and Gearóid Harrahill between 08.40hrs and 18.25hrs. The areas assessed were:

- The Surgical Ear, Nose and Throat Ward, a 31-bedded ward which comprises four six-bedded rooms, one three-bedded room and four single en-suite rooms.

In addition, the Renal Dialysis Unit, which was inspected during an unannounced inspection by HIQA on 28 May 2015, was re-visited to assess the level of progress which had been made since the 2015 inspection. A centralized location for laundering cleaning textiles was also visited.

HIQA would like to acknowledge the cooperation of staff with this unannounced inspection.

2. Findings

This report outlines HIQA's overall assessment in relation to the inspection, and includes key findings of relevance. A list of additional low-level findings relating to non-compliance with the standards has been provided to the hospital for inclusion in local quality improvement plans. However, the overall nature of the key areas of non-compliance are within this report.

This report is structured as follows:

- **Section 2.1** outlines the level of progress made by the hospital since the unannounced inspection on 28 May 2015.
- **Section 2.2** presents the key findings of the unannounced inspection on 16 June 2016.
- **Section 2.3** describes the key findings relating to hand hygiene under the headings of the five key elements of the World Health Organization (WHO) multimodal improvement strategy.⁶
- **Section 2.4** describes the key findings relating to infection prevention care bundles.

2.1 Progress since the last unannounced inspection on 28 May 2015

An updated version of the Quality Improvement Plan (QIP)⁷ produced by the hospital following the last inspection was reviewed. HIQA notes that the QIP provided did not include two key risks that had been identified during and following the last inspection conducted by HIQA - specifically orthopaedic surgical site infection and *Clostridium difficile* infection. The QIP showed that issues identified in relation to legionella control, hand hygiene facilities, governance arrangements for Healthcare Associated Infection, a surveillance scientist position vacancy and antimicrobial consumption levels had been addressed. Findings in relation to the design of the Endoscopy Unit were reported to be under review with an expected date of completion in September 2016.

Documentation reviewed showed that the hospital infection prevention and control policy for the management of cases of *Clostridium difficile* infection had been revised and updated. It was reported that root cause analyses were performed in respect of all new cases of *Clostridium difficile* infection. Data reviewed by HIQA showed that there was an increase in reported cases of *Clostridium difficile* infection in quarter 4, 2015 and that this was attributed to an outbreak which was confined to one ward. The rate of this infection had since decreased and was within the desirable HSE threshold. This shows improvement since the previous inspection.

Elective orthopaedic prosthetic joint surgery-related infection incidence

The Midland Regional Hospital Tullamore commenced a programme of surgical site infection surveillance in late 2013 among elective orthopaedic prosthetic joint surgery patients. This is an important and proactive quality assurance and improvement step. Measuring the incidence of post-operative infection allows those providing and using services to be assured of the quality of care provided, and may also prompt a timely and proactive reduction in infection rates where identified problems are signalled. Such surveillance is currently not the norm in Irish hospitals, and efforts by the hospital to progress this should be both commended and supported.

In the absence of Irish infection surveillance data for comparison purposes, the hospital collects surveillance data and submits its findings to the UK national surgical site infection surveillance service managed by Public Health England. Quarterly reports are provided to the hospital by the UK surveillance service which allows the hospital to compare rates of surgical site infection over time against a benchmarked rate of infection generated from UK infection surveillance data.

In a 2015 inspection, HIQA identified that reported infection rates from this surveillance programme potentially indicated a higher than desirable infection rate in the service. Alternative follow-up analysis showed a somewhat lower rate of surgical

site infection. A lack of clarity in the recording of surgical site infection incidence was identified, in a programme that was still in the early stages of generating data. A commitment to improve performance on this issue was provided to HIQA at that time by the hospital and hospital group.

In order to review progress made since the last HIQA inspection in relation to this issue, HIQA further explored the hospital's approach to surveillance and surgical site infection prevention on the day of this inspection.

HIQA found that the rate of surgical site infection following elective orthopaedic prosthetic joint surgery remained higher than desirable based upon reported data benchmarked against UK figures. This prompted HIQA to request further assurance from the Hospital Group Chief Executive Officer as outlined in Appendix 1. The Dublin Midlands Hospital Group responded to HIQA outlining a range of interventions that had been implemented or were planned going forward, as shown in Appendix 2. Additionally, the hospital group reported that a peer review had been conducted at the request of the Dublin Midlands Hospital Group Management Team, by healthcare professionals from other hospitals in the hospital group. This peer review found, through detailed analysis of potential cases of infection, that the rate of surgical site infection was slightly lower than originally determined through benchmarked data. In short, HIQA were able to determine that the rate of infection in the service from 01 January 2015 to 31 January 2016 was lower than originally thought. However, there is still scope for improvement in performance to bring it into line with the best performing hospitals in the UK.

Since the 2015 inspection, a significant body of work has been carried out by the hospital Infection Prevention and Control Team to identify areas of improvement in relation to the patient journey, surgical antimicrobial prophylaxis administration, hand hygiene, skin preparation, post-operative wound care and the care environment. Recommendations to drive improvement have been provided by this team and independent reviewers. Reviews performed for the hospital into this issue have highlighted the need for constructive multi-disciplinary team working and effective governance arrangements with regard to elective orthopaedic prosthetic joint surgery-related infection.

It is recommended that the surgical site infection surveillance programme at the hospital is continued and that it is supported by the hospital management team and relevant stakeholders, and that effective governance arrangements are in place within the hospital group structure. These arrangements should ensure that there is ongoing oversight of surveillance results alongside the implementation of measures to improve patient outcomes. The hospital has established a means of collating infection rates in this patient cohort. Going forward, it is recommended that there is a strong focus on quality improvement, through the effective and sustained

introduction of evidence-based measures to address this issue, as identified by the hospital itself in response to surveillance data findings.

Renal dialysis service

The Renal Dialysis Unit was revisited during this inspection. It was reported that plans are underway to provide a second toilet for patients as recommended in the 2015 HIQA inspection report. This is a positive development.

Increased spatial separation between patients in the three-bay dialysis room was also recommended by HIQA during the 2015 inspection. However, it was reported that there was no agreed timeframe in which this issue would be addressed because of increasing dialysis service demands. It is again recommended that this issue is addressed as spacing around these dialysis stations is limited and therefore less than optimal from an infection control perspective.

Since the last HIQA inspection in 2015 the hospital has expanded the renal dialysis service, therefore increasing the overall number of dialysis stations from 20 to 26. The additional six dialysis stations are in an older part of the hospital which is geographically separated from the main dialysis unit. It was reported that risks in relation to nursing staff skill mix and delays in the placement of permanent venous access devices needed for patients undergoing renal dialysis had been placed on the hospital risk register. It was recommended at the time of inspection that delays in respect of establishing intravascular access for long-term use are quantified and addressed as necessary. Going forward, the hospital should plan for the optimal configuration of dialysis facilities in the site development plan in line with relevant guidelines.⁸ Risks identified in relation to dialysis service provision should be collectively assessed and effectively managed.

Legionella control

Since the last inspection the hospital had commissioned an independent legionella risk assessment, the report of which was pending at the time of this inspection, and therefore not available to review. It was reported that legionella bacteria had been isolated from some elements of the hospital water supply system and that the issue was being addressed by the hospital. It is recommended that any risks identified in the legionella risk assessment are addressed effectively and that legionella control measures are managed in line with current national guidelines.⁹

Risk management and staffing resources

A copy of the risk register reviewed by HIQA during this inspection indicated that the hospital risk register requires significant review and that risk control measures need to be updated regularly. Risks in respect of infection prevention and control on the register dating back to 2012 require re-evaluation. It was reported by the hospital

that the risk register had not been updated for some time due to resource deficiencies, but that a full revision of the risk register was in progress. Since the previous inspection hospital management personnel had changed with the appointment of a new hospital general manager position, a new director of nursing position, and a new patient safety manager position. The hospital reported that it was in the process of recruiting a chief operations officer position.

The hospital reported that the position of antimicrobial pharmacist was vacant for a number of months in 2015 and 2016 and that this delayed the commencement of the 2016 antimicrobial stewardship programme. It was noted by HIQA that consultant microbiology cover and part of the infection prevention control nursing resource were divided across three regional hospitals which are in two different hospital groups. Additionally, the infection prevention and control team lacks designated administrative support.

The 2015 HIQA inspection report identified that the hospital did not have a designated management position with responsibility for hospital hygiene. At the time of this inspection, this position was still unfilled. The hospital reported that a recruitment process was underway to address this issue. Failure to fill such a key position for a prolonged period of time is a significant concern, and should be addressed.

2.2 Key findings of the unannounced inspection 16 June 2016

Patient equipment hygiene

Overall patient equipment in the Surgical Ear Nose and Throat Ward was generally clean with a few exceptions. A brown stain and sticky tape was observed on a glucose monitor holder. Dust and staining was observed on the internal components of intravenous pumps.

Patient environment

Overall the patient environment in the Surgical Ear Nose and Throat Ward was generally clean with some exceptions. Organic matter was noticed on the undersurface of a patient armchair. The undersurface of a patient bed was found to be dusty following a cleaning session — this was addressed at the time of the inspection. The interior surface of one mattress cover was stained, indicating that the mattress cover was no longer resistant to moisture. It is recommended that mattress cores are checked frequently and replaced as required. An environmental hygiene audit performed in February 2016 showed over 95% compliance with desirable standards in the Surgical Ear Nose and Throat Ward.

Management of environmental hygiene resources and practices

HIQA note that the hospital has established a hospital hygiene action group with documentation reviewed stating that the objective of the group was 'providing a forum for the management, monitoring and review of the internal hygiene system'. Notwithstanding the establishment of this group, HIQA again recommends that the hospital appoint a designated senior management position with responsibility for hospital environmental hygiene and that there are appropriate governance arrangements in place to ensure that hospital hygiene is effectively managed.

It was reported that multi-task attendants had dual cleaning and catering duties in the Surgical Ear Nose and Throat Ward. In addition, inspectors were informed that multi-task attendants were sometimes redeployed to other areas leaving the Surgical Ear Nose and Throat Ward without this resource. Dual catering and cleaning roles should be reviewed as the operational norm in most hospitals is that catering duties and cleaning duties in clinical areas are performed by separate staff positions. It is recommended that clinical areas are appropriately resourced to facilitate effective cleaning.

Transmission-based precautions

During the inspection, doors to an isolation room accommodating a patient requiring transmission-based precautions were open, which is not in line with best practice. Isolation room doors should be kept closed, as far as possible. Signage to indicate required transmission-based precautions in one occupied isolation room was displayed on the outer isolation door which was ajar and therefore could not be easily seen from the corridor. Such signage should be clearly visible to ensure that staff and visitors are alerted to the necessary infection prevention and control precautions before entering an isolation room.

2.3 Key findings relating to hand hygiene

2.3.1 System change: *ensuring that the necessary infrastructure is in place to allow healthcare workers to practice hand hygiene.*⁶

- Alcohol gel dispensers were available at each point of care in the Surgical Ear Nose and Throat Ward.
- In the Surgical Ear Nose and Throat Ward, not all clinical hand wash sinks conformed to Health Building Note 00-10 Part C: Sanitary Assemblies.¹⁰

2.3.2 Training/education⁶: *providing regular training on the importance of hand hygiene, based on the 'My 5 Moments for Hand Hygiene' approach, and the correct procedures for hand rubbing and hand washing, to all healthcare workers.*

- It was reported that 67% of relevant hospital staff had completed hand hygiene training in the past two years. All staff in the Surgical Ear Nose and Throat Ward were up to date with hand hygiene training.
- Ongoing difficulties were reported in relation to ascertaining hand hygiene training uptake by hospital staff. Details of hand hygiene training uptake by discipline was not available. This issue was highlighted in the previous inspection and needs to be addressed.

2.3.3 Evaluation and feedback⁶: *monitoring hand hygiene practices and infrastructure, along with related perceptions and knowledge among healthcare workers, while providing performance and results feedback to staff.*

National hand hygiene audits

Midland Regional Hospital Tullamore participates in the national hand hygiene audits which are published twice a year, results are shown in Table 1. The hospital achieved compliance with the Health Service Executive's (HSE) national target of 90% for hand hygiene compliance in October/November 2015.¹¹ The most recent result provided by the hospital in respect of period 11 (May/June 2016) shows a decrease in overall hand hygiene compliance among hospital staff to 85% which is below the desirable standard.

Table 1: National hand hygiene audit results for the Midland Regional Hospital Tullamore

Time period	Result
May/June 2012	80.0%
October/November 2012	81.9%
May/June 2013	71.9%
October/November 2013	85.7%
May/June 2014	82.4%
October/November 2014	84.3%
May/June 2015	86.7%
October/November 2015	90.5%

Source: Health Protection Surveillance Centre – national hand hygiene audit results.¹²

Local hand hygiene audits

- The Surgical Ear Nose and Throat Ward and the Renal Dialysis Unit scored 90 and 100% respectively in audits of hand hygiene compliance in May 2016 which is in compliance with the desirable national standard.
- A high level of hand hygiene compliance such as that reported by the Surgical Ear Nose and Throat Ward and the Renal Dialysis Unit was not consistently demonstrated across all clinical areas in the hospital in 2016. Records reviewed showed that hand hygiene compliance was less than 76% in audits performed in the Emergency Department in May and June 2016. The Elective Orthopaedic and Trauma Orthopaedic Wards scored 80% and 70% respectively in hand hygiene compliance audits performed in April and May 2016, which is of concern. Poorer performing areas should be targeted in relation to providing hand hygiene education and auditing practice.

Observation of hand hygiene opportunities

Observations of hand hygiene practice were not performed during this inspection.

2.3.4 Reminders in the workplace⁶: *prompting and reminding healthcare workers about the importance of hand hygiene and about the appropriate indications and procedures for performing it.*

- Hand hygiene advisory posters were available, up to date and appropriately displayed in the Surgical Ear Nose and Throat Ward.

2.3.5 Institutional safety climate: *creating an environment and the perceptions that facilitate awareness-raising about patient safety issues while guaranteeing consideration of hand hygiene improvement as a high priority at all levels.*⁶

- The hospital had a number of hand hygiene champions to promote hand hygiene at clinical level.
- The hospital holds an annual hand hygiene awareness day to coincide with the World Health Organisation international hand hygiene day.

2.4 Key findings relating to infection prevention care bundles*

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 published in recent years recommending their introduction across the Irish health system.^{13,14}

* A care bundle consists of a number of evidence based practices which when consistently implemented together reduce the risk of device-related infection.

The Midland Regional Hospital Tullamore reported that care bundles for peripheral vascular catheters, urinary catheters and central venous catheters had been in place for the past five years. It was evident that peripheral vascular catheter care bundles were in place in the Surgical Ear Nose and Throat Ward. The hospital is currently reviewing care bundle implementation and refining data management in relation to care bundle compliance audits. It is recommended that related policies, when next updated, should reflect care bundle components.

3. Summary

Overall the patient environment in the Surgical Ear Nose and Throat Ward was generally clean with some exceptions. It was of concern that the hospital did not have a designated management position with responsibility for hospital hygiene. This deficiency was also noted in the 2015 HIQA inspection.

HIQA found that the rate of surgical site infection following elective orthopaedic prosthetic joint surgery remained higher than desirable based upon reported data benchmarked against UK figures. This prompted HIQA to request further assurance from the Hospital Group Chief Executive Officer as outlined in this report. A peer review found, through detailed analysis of potential cases of infection, that the rate of surgical site infection was slightly lower than originally determined through benchmarked data. However, there is still scope for improvement in performance to bring it into line with the best performing hospitals in the UK. The efforts of Midland Regional Hospital Tullamore in working to progress a surgical site infection surveillance programme should be commended. However in establishing same, it is important that the programme is effectively structured, resourced and governed. Ongoing lack of clarity with respect to data generated by the programme runs the risk of impacting upon its ongoing effectiveness. It is crucially important that the hospital continues its efforts to enhance this programme and ensure effective governance, with support as needed at hospital group level. The hospital also needs to continue to work to reduce the incidence of surgical site infection through implementation of associated action plans in the best interest of patients.

A recent national review by HIQA identified the need for an improved approach to surveillance and quality assurance in the area of infection prevention and control and antimicrobial resistance nationally.¹⁵ As part of this review, the need for improved systems of surgical site infection surveillance was identified. Moreover, a number of other national and international bodies have recommended the establishment of such systems as a key quality assurance and improvement measure.¹⁶

Hand hygiene compliance among hospital staff was 85% for the period May/June 2016 which is below the desirable HSE performance indicator of 90% and therefore requires improvement.

Since the last HIQA inspection in 2015 the hospital has expanded the number of renal dialysis stations so that dialysis stations are now located in two locations in the hospital. Going forward, the hospital should plan for the optimal configuration of dialysis facilities in the site development plan in line with relevant guidelines.¹⁷ Risks identified in relation to dialysis service provision should be collectively assessed and effectively managed.

Midland Regional Hospital Tullamore has implemented peripheral venous catheter, central venous catheter and urinary catheter care bundles across clinical areas. The hospital was in the process of revising care bundle implementation and related audit data management so as to identify any opportunities for improvement.

4. Next steps

The Midland Regional Hospital Tullamore must now revise and amend its quality improvement plan (QIP), which prioritizes the improvements necessary to fully comply with the standards. This QIP must be approved by the service provider's identified individual who has overall executive accountability, responsibility and authority for the delivery of high quality, safe and reliable services. The QIP must be published by the hospital on its website within six weeks of the date of publication of this report and at that time, provide HIQA with details of the web link to the QIP.

It is the responsibility of the Midland Regional Hospital Tullamore to formulate, resource and execute its QIP to completion. HIQA will continue to monitor the hospital's progress in implementing its QIP, as well as relevant outcome measurements and key performance indicators. Such an approach intends to assure the public that the hospital is implementing and meeting the standards, and is making quality and safety improvements that safeguard patients.

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Appendix 1- Copy of letter issued to the Midland Regional Hospital Tullamore Hospital following the unannounced inspection on 16 June 2016



Susan O' Reilly
Chief Executive Officer
Dublin Midlands Hospitals Group
ceodm@hse.ie

22 June 2016

Ref: PCHCAI/641

Dear Susan

Surgical site infection rates in elective prosthetic hip and knee replacement surgery at the Midlands Regional Hospital Tullamore

The Health Information and Quality Authority (HIQA) undertook a routine unannounced inspection against the *National Standards for the Prevention and Control of Healthcare Associated Infection* at the Midlands Regional Hospital Tullamore on 16 June 2016.

Following a previous unannounced inspection in May 2015, I wrote to you to seek assurance in relation to potential risks related to the incidence of surgical site infection in elective prosthetic hip and knee replacement surgery at this hospital.

During this most recent inspection, surgical site infection surveillance results relating to total knee replacement and total hip replacement for 2015 were provided to HIQA. The hospital have linked in with an established programme of benchmarked surveillance of total hip and knee replacement surgery with Public Health England (PHE), as a comparable Irish system is not in place.

HIQA note that correspondence to the hospital on 13 May 2016 from PHE flagged that the hospital's reported rate of surgical site infection in both knee and hip replacement were outliers relative to the majority of hospitals enrolled in the programme in 2015, in that the rate of infection was significantly above the

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majority of UK hospitals that participated (the hospital was above the 90th percentile for both surgery types).

The letter from PHE requested that the hospital examine the result carefully, as action may need to be taken to reduce the infection incidence rate. In light of both this correspondence, and HIQA's prior concerns with respect to this issue following the May 2015 inspection, I am writing to you to seek assurance that the orthopaedic surgical service in the Midland Regional Hospital in Tullamore is safe for patients from an infection risk perspective.

Additionally, please provide details of targeted interventions that both have been implemented by the hospital, and are planned (including both the orthopaedic surgical team and the hospital management team), aimed specifically at decreasing surgical site infections in this patient cohort.

I request a written response from you within **10 working days** to be sent by email for my attention to qualityandsafety@hiqa.ie. It is the intention that HIQA will defer completion of its planned unannounced inspection report until such time as a response is received from you.

Should you have any additional queries in relation to this correspondence please do not hesitate to contact me.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Seán Egan', written over a horizontal line.

SEAN EGAN
Acting Head of Healthcare

CC: Orlagh Claffey, General Manager, Midland Regional Hospital Tullamore
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Appendix 2- Copy of the response received from Midland Regional Hospital Tullamore in response to letter received from HIQA following the unannounced inspection on 16 June 2016



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8th July 2016

Ref: PCHCAI/641

Mr. Sean Egan,
Acting Head of Healthcare,
Unit 1301,
City Gate,
Mahon,
Cork

Surgical site infection rates in elective prosthetic hip and knee replacement surgery at the Midlands Regional Hospital Tullamore

Dear Mr. Egan,

I refer to your correspondence dated 22nd June 2016, concerning the Authority's unannounced site visit at the Midland Regional Hospital Tullamore on 16th June 2016.

The correspondence relates in particular to surgical site infection rates in elective prosthetic hip and knee replacement surgery. There is no orthopaedic registry in Ireland to allow bench marking for SSI rates, therefore, the Orthopaedic Department at Tullamore Hospital has been inputting data to the NHS PHE registry for the last number of years. It is accepted that international standards should be our standards and that levels achieved in the best units in NHS or the United States should be our goals.

As per previous correspondence to HIQA dated 15th September 2015 it is extremely important to differentiate between superficial infections and the prosthetic joint infections or deep wound infection. The PHE reports obviously cover all types of surgery. The dedicated orthopaedic literature focuses largely on prosthetic joint infection (PJI) reported rates of PJI are between 0.5% & 7%. The number one orthopaedic institution in the United States has a rate of 0.76%. Concerns were raised in the past year in terms of important applications and in the Royal College of Surgeons of England and bone and joint journal relating to reliability of data collection within the NHS. It is the Groups' understanding that the data in the PHE reports the numbers of joint replacements carried out to treat prosthetic joint infection is approximately twice the incidents of prosthetic joint infections (TKR:0.7% V 0.32%, THR0.7% V 0.4%).

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With regard to the Tullamore data it is acknowledged when one reads the accompanying correspondence with the report from PHI pointing out as you do that the rate of infection is above the 90% of the UK data for both types of surgery. Specifically the report for knee October – December gave us a 1.4% rate for SSI for the previous 4 periods (144 procedures) in fact none of these was a deep wound or prosthetic joint infection or superficial with 0% PJ irate for total hip replacements previous four periods had 207 joint replacements with a PJI of 1.9% the overall PJI rate for combined joint replacement for that period is 1.14%.

I think it is vitally important that this country develops its own bench marking and data set and I hope in the near further that the other major orthopaedic unit in our group i.e. Tallaght Hospital will be in a position to commence submitting data to the PHE data base while we await the development of the National Orthopaedic Registry.

The Dublin Midlands Hospital Group's Quality & Patient Safety Committee commissioned a Peer Review to deal with concerns raised in an email regarding elective hip athroplasty in the period 2015-2016. A total of 6 cases were cited for this period and the review was carried out by a Consultant Microbiologist from Tallaght Hospital, Consultant Orthopaedic Surgeon with sessions at both Tallaght Hospital & St James's Hospital and Infection Control Nurse Manager from St James's Hospital. This review has been completed and is being reviewed by the Group's QPS Committee. This report in full will be shared with the Authority following this. However a copy of the teams final summary is set out hereunder:

The review team found factual inaccuracies in the email dated 28/1/16 and identified that four of the six cases raised meet the SSI criteria as per the Public Health England SSI protocol.

The total rate for elective hip and knee replacement surgery for 2015 at Hospital X was 3.4% (not counting unconfirmed patient reported infections).

In the HCI 2013-2014 (Oct 2013 – Feb 2014) SSI review the rate of infection for hip and knee replacement surgery at Hospital X was found to be 4.2%.

There is no national SSI rate in orthopaedic surgery to allow for benchmarking/comparison across centres.

It is commendable that such effort and resources have been committed to establishing and maintaining a robust SSI surveillance system in Hospital X. Similar initiatives across the country (including other disciplines) would be advantageous and would result in a national benchmarking ability. I understand

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that the consultant Microbiologist for Hospital X has written to the minister of health recommending this and the review team would support this recommendation.

Continued engagement with the SSI programme is paramount if improvements are to be made in the overall infection rate. The team at hospital X should continue to progress quality initiative identified following the external HCI 2013-2014 SSI review.

There is no doubting the commitment to date – both in terms of personnel and resources. Personal differences must not be allowed to derail the process. Teamwork and collaboration with strong leadership and support will be needed.

The Senior Management Team at Tullamore Hospital i.e. General Manager, Clinical Director and Director of Nursing have set out improvements that have been put in place and further planned improvements by the Orthopaedic Multi-disciplinary Team members in association with the Infection Prevention & Control Team as per the hospitals ongoing Surgical Site Surveillance Infection (SSSI) Quality Improvement Programme. This has resulted in an enhancement of the SSSI process enabling 360 degree review of same ensuring ongoing continual focused quality improvements in orthopaedic elective primary joints.

The following demonstrates the range of interventions both implemented and planned by the Hospital.

a) Improvements undertaken by Orthopaedic MDT including pre-operative care, surgery, post-operative care, clinical areas and theatre care.

• Pre-operative care

- Patients are preoperatively assessed to detect modifiable risk factors and address these issues to optimize patients.
- All elective orthopaedic patients are screened pre-operatively for MRSA.
- All trauma orthopaedic patients are screened for MRSA within 24 hours of admission.
- Smoking status and smoking cessation programme introduced and supported with the introduction of Smoking and Bone Health information leaflet.(See Appendix 1)
- BMI > 40, diet etc, (Recent literature points to the fact that these patients have an increased risk of Prosthetic Joint Infection PJI, and indeed some surgeons are now refusing to operate on these patients in light of this added risk) Indeed a BMI of 50 increases the risk by an odds ratio of x 21.3)
- Screening of all patients with diabetes due to increased levels risk of SSSI in this population. HB1AC levels are routinely done on all orthopaedic patients, odds risk of

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high Hb1Ac risk x of 2.31. Glucose levels are monitored and rigorously controlled pre-operatively.

- Enhanced care of rheumatology patient due to increase risk of SSSI in this population. Biologics such as Embrel are stopped 2-3 weeks pre-operatively and 2-3 weeks post operatively.
- Orthopaedic patients' pre-operative, intra-operative and post-operative body temperature is monitored. Warming blankets were introduced at ward level rather than in theatre to optimise patient body temperature.
- Pre-operative Orthopaedic Assessment Nurses identify patients who require assistance with ADLs, ensuring these patients are assisted with cleansing pre-operatively as indicated. Enhancement of patient information with the introduction of the Patient

Information Booklet for Hip Replacement Surgery and Knee Replacement Surgery.
(Appendix 2)

- **Surgery**
 - Elective scheduled joints replacement procedures are operated in a laminar air-flow theatre only and patients are not mixed, i.e. elective theatre for joints only and no trauma cases.
 - Anticoagulation: national guidelines of Aspirin prophylaxis and risk stratification of VTE risk. Excessive anticoagulation and previous usage of Xarelto etc leads to higher post op wound issues and as such increased rates of PJI.
 - Surgeons have been advised, based on the RCPI SSSI bundle to use Chloroprep for skin antisepsis.
 - There is restricted access to the operating theatre while surgery is in progress.
 - Antibiotics are prescribed as per RCPI care bundle and are audited regularly by the Antimicrobial Pharmacist.
 - Tranexamic acid is routinely used in all joint replacements in the absence of patient risk factors. This has reduced the risk of allogenic blood transfusions and increased risk of PJI associated.
 - Nursing metrics were commenced in the operating theatre in March 2015 with resultant ongoing quality improvements.
- **Post operative care**
 - Every effort is made to ensure that patient are managed in "ring fenced" beds and are not mixed with other hospitalized patients.
 - Monthly hand hygiene audits are conducted and feedback is provided to the department.

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- There is a full hygiene audit conducted quarterly in all departments and feedback is provided to the Departments. All areas are subject to additional random environmental audits and the audit conducted at the end of May in Theatre demonstrated 95% compliance.
 - All clinical staff are advised to comply with wound management guidelines and Aseptic Non-Touch Technique. (ANTT)
 - New patient hoist with disposable slings have been provided for the protected use of the orthopaedic ward to reduce inter-department sharing.
 - Introduction of Cryo cuff for knee surgery patients to enable quicker patient recovery reducing hospital length of stay.
 - All joint replacement patients are given patient discharge information (Appendix 3)
- **Current Actions and Further Planned improvements**
 - Theatre practice audit schedule commenced on June 20th in all Theatres. (Appendix 4).
 - From July 4th 2016 for three months (July – September) the CNM III/designated CNM II will be present for joint surgery (Monday to Wednesday) to conduct audits when scheduled hip and knee surgeries are performed.
 - Operating Theatre department access review due to commence.
 - Planned relocation of the internal waste management depot in progress.
 - Review of the schedule of replacement of pre-filters in the HEPA system currently underway.
 - Strict use of both trauma and elective theatres to be monitored.
 - Planned review of ANTT in the operating theatre.
 - **Antimicrobial improvements**
 - There is a plan in place with a number of suggestions, improvements and interventions with regard to antimicrobial usage as approved at a recent HCAI Committee (Appendix 5).
 - A revision of the MRHT Medication Prescription and Administration Record (MPAR) was undertaken (Appendix 6) with a designated antimicrobial section and launched 1st February 2016.
 - Weekly Microbial meetings for the orthopaedics service occur with the Consultant Microbiologist and Antimicrobial Pharmacist to review all patients on antimicrobials.
 - Incorporation of designated surgical antibiotic prophylaxis section in anaesthetic record.

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b) Improvements undertaken by Hospital Management

Improvements to governance structures.

Key posts have been progressed by hospital management team:

- Theatre CNM111 took up post in June 2016
- Orthopaedic Trauma CNM11 took up post in March 2016
- Orthopaedic Theatre CNM11 Position is being interviewed for in early July
- Support Services Manager (grade VII) – interviews taking place on July 7th & 8th.
- Panel recently formed from which two WTE theatre staff nurse vacancies will be filled
- Surveillance Scientist replaced in October 2015
- DON appointed in October 2015.
- GM appointed in November 2015.
- Quality and Patient Safety Manager appointed in February 2016.
- DNM with responsibility for clinical risk management in place September 2015.
- Appointment of Operations Manager pending progressing of interview process through NRS.
- Planned improvement to clinical leadership in the Orthopaedic Service with submission of upgrade of a Staff Nurse position to a CNMI position to group level.

• SSSI process improvement

IPC processes for conducting Root Cause Analysis (RCA) for C. Diff, MRSA, and Bacteraemia has been in place for a period of time and is currently under review. This reviewed process will then be proposed to be incorporated into an MDT orthopaedic joint surgery SSSI RCA process. (Refer to SSSI Committee Draft Terms of Reference referred below)

In addition to the well established Health Care Associated Infection (HCAI) Committee, the hospital has also convened a Surgical Site Surveillance Infection (SSSI) Committee, with a view to ensuring that action is taken on all reports issued from Public Health England (PHE). Draft terms of reference for the committee are attached (Appendix 7). The membership of this Committee is currently under review considering HIQA's recent site visit opinion that it should include ventilation and air handling experts.

The draft terms of reference demonstrate that this committee will be responsible for 360 review for all identified orthopaedic SSSI's. The terms of reference require:

- All reports will be reviewed in a timely manner

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- Quality Improvement Plans (QIP) will be developed from each report
- The progress of implementation of those plans will be monitored
- Completed QIP's will be monitored to ensure that they are maintained
- All relevant reports to be circulated, reviewed and actioned including the recommendations from the "HCI Report Midland Regional Hospital at Tullamore Surgical Site Infection Review and Recommendations – Orthopaedic Joint Replacement Surgery October 2013-February 2014" and the pending peer review report of May/June 2016.

- **Implementation Hospital Hygiene Action Group.**

This group was established in May 2016 with the key objective of providing for the management, monitoring and review of National Hygiene Standards. Revised Chair of this group is at ADON level (as advised by HIQA).

- **Committee Effectiveness**

Annual review of effectiveness of all Hospital Committees processes to be developed to assess impact of implementation of quality improvement measures to provide further strategic advice and recommendations to the Hospital Management Team.

- **Risk and Incident Management**

Staff are actively encouraged to complete incident report forms in respect of near misses and incidents. The number and type of HCAI incidents are reviewed at each HCAI meeting.

I have requested the Group's Quality & Patient Safety Committee to monitor the SSSI Quality Improvement Programme as set out by the Tullamore Hospital Management Team as part of their regular QPS meetings so as to ensure that its Orthopaedic Surgical Service remains safe for patients from an infection risk perspective. Regular updates will be given by the QPS Lead on this matter at the Groups Executive Management Meetings.

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I trust the foregoing clarifies current position however should you have any queries please do not hesitate to contact my office on 01-6352959.

Yours Sincerely,

Dr. Susan O'Reilly
MB, BCh, BAO, FRCPC, FRCPI
Chief Executive Officer

CC: Ms Orlagh Claffey, General Manager, Midland Regional Hospital Tullamore
Mr Martin Feeley, Clinical Director, Dublin Midlands Hospital Group
Mr Sean Johnson, Clinical Director, Midland Regional Hospital Tullamore
Mr Liam Woods, National Director, Acute Hospitals, Health Service Executive
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