



**Health
Information
and Quality
Authority**

An tÚdarás Um Fhaisnéis
agus Cáilíocht Sláinte

Report of the unannounced inspection at the Kilcreene Regional Orthopaedic Hospital, Kilkenny

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

Date of on-site inspection: 03 February 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.

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1. Introduction

The Health Information and Quality Authority (the Authority) 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 the Authority is outlined in guidance available on the Authority'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 the Authority will assess the practice in 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 guidelines³⁻⁴ 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 minimise 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. The Authority 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. The Authority'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 the inspection will aim to identify progress made at since the previous unannounced inspection conducted in 2014.

An unannounced inspection was carried out at Kilcreene Regional Orthopaedic Hospital, Kilkenny on 03 February 2016 by Authorised Persons from the Authority, Kathryn Hanly and Katrina Sugrue between 10:25hrs and 16:20hrs. The area assessed was:

- Theatre Department which comprises of two operating rooms and facilities for the reprocessing of invasive medical devices.

In addition, St Bridget's Ward, which was inspected during an unannounced inspection by the Authority on 11 September 2014, was re-visited to assess the level of progress which had been made after the 2014 inspection.

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

2. Findings

This report outlines the Authority'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 St Bridget's Ward after the unannounced inspection on 11 September 2014.
- **Section 2.2** presents the key findings of the unannounced inspection on 03 February 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 during the unannounced inspection on 03 February 2016.
- **Section 2.4** describes the key findings relating to infection prevention care bundles during the unannounced inspection on 03 February 2016.

2.1 Progress since the last unannounced inspection on 11 September 2014

The Authority reviewed the quality improvement plan (QIP)⁷ published by Kilcreene Regional Orthopaedic Hospital, following the September 2014 inspection. The majority of actions identified in the QIP had been addressed.

The Authority observed improvements in the environment and facilities of St Bridget's Ward during the 2015 inspection. In response to the findings of the 2014 inspection a new store room was created and the 'dirty' utility* room had been refurbished. St Bridget's achieved 93% compliance in the most recent environmental hygiene audit conducted on the ward. Maintenance work including a targeted programme for refurbishment and replacement of damaged furniture had been implemented following the 2014 inspection.

* ± A 'dirty' utility room is a temporary holding area for soiled/contaminated equipment, materials or waste prior to their disposal, cleaning or treatment.

2.2 Key findings of the unannounced inspection on 03 February 2016

Theatre Department infrastructure and facilities

Overall the environment and equipment in the Theatre Department was generally clean. An environmental hygiene audit carried out in the Theatre Department in December 2015 demonstrated a 96.8% compliance rate. However, the infrastructure and design of the Department is outdated and as such did not support the separation of functional activity of clean and potentially contaminated items, equipment or activities that could result in contamination. Facilities for reprocessing of surgical instruments located within the Theatre Department are not in line with recommended standards.¹³ The Theatre Department has a single entrance/exit so there is no separate exit access for waste generated in theatres.⁸

In the absence of a surgical site infection surveillance programme, the hospital does not have appropriate mechanisms in place to assure itself that infrastructural deficits in the Theatre Department do not negatively impact on patients from an infection prevention and control perspective. The National Clinical Programme for Trauma and Orthopaedic Surgery has recommended that surgical site surveillance in orthopaedic surgery become mandatory in Ireland.⁹

'Dirty' utility area

The 'dirty' utility area shared between the two operating rooms in the Theatre Department was not self contained. It was multifunctional and contained facilities for the washing stage of reusable invasive medical devices. Clean and dirty areas should be kept separate and the workflow patterns of each area should be clearly defined.¹⁰ There was no disposal unit for body fluids or patient toilet facilities available in the Theatre Department at the time of the inspection. Inspectors were informed that on an occasional basis body fluids were transported out of the Theatre Department to the hospital ward for disposal. This practice is unacceptable and should be discontinued.

Hand wash sinks

The hand wash sinks inspected in the Theatre Department contained plastic inserts in the sinks' outlets. Staining and residue were visible on these inserts, and the areas of the outlets behind the inserts were unclean. Ineffective cleaning of distal ends of plumbing systems such as sinks, taps, sink drains and sink traps may pose a risk of contamination with pathogens such as *Pseudomonas aeruginosa*¹¹ which have the ability to cause major healthcare associated infection outbreaks.¹² It is important that, in accordance with national guidelines, the hospital ensures that there is a regular documented cleaning, decontamination and maintenance schedule for all water outlets.¹¹

Reprocessing of reusable invasive medical devices.

The infrastructure of current facilities for the reprocessing of reusable invasive medical devices in Kilcreene Regional Orthopaedic Hospital are not in line with current best practice guidelines and standards.¹³ The unit was configured such that the reprocessing facility was located within the footprint of the Theatre Department.

Opportunities for improvement in relation to staff work flow patterns within this area were also identified. Staff movement, between dirty and clean areas of the reprocessing facility should not be possible without passing through a clothing change and hand-wash area.¹³ Furthermore, it was reported to Authorised Persons that staff involved in the reprocessing of reusable invasive medical devices were also occasionally assigned to general duties within the Theatre Department. The area should be managed by trained staff whose sole or primary responsibility is management of the decontamination facilities.¹³

The Authority recommends that the hospital review the facilities, processes and practices relating to the reprocessing of reusable invasive medical devices to determine compliance with the current standards¹³ and to assure itself that infection control risks are appropriately managed, minimised or mitigated.

Safe Injection Practices

During the inspection of an operating room, the Authorised Persons observed a number of syringes containing reconstituted intravenous medications, insufficiently labelled and stored in an uncovered tray on top of the anaesthetic trolley. It was reported that multiple syringes of intravenous anaesthetic medications are pre-prepared at the beginning of each day for emergency use. An additional syringe containing 30mls of a white substance was observed in a second tray on the same trolley. It was reported that this medication was intended for use during the next elective surgical case and is routinely drawn up advance of the patients' arrival into the operating room. The practice of pre-preparing intravenous medication for elective use may pose an increased risk of infection for patients.¹⁴ Furthermore, the operating room inspected was unlocked and had recently been cleaned, potentially allowing unauthorised access to intravenous medications in the operating room. It is of concern to HIQA that the practice of leaving reconstituted medication sitting in an uncovered tray for an undetermined timeframe had the potential to significantly increase the risk of extrinsic contamination of the medications and transmission of infectious pathogens.^{15,14}

In addition, Authorised Persons observed a partially used syringe containing 6ml of a controlled drug and a partially used ampoule of medication in the same IV tray as the emergency anaesthetic medications. A staff member reported that this syringe had been used during the previous case. To avoid inadvertent cross contamination

of unused syringes, drugs routinely used during surgery should be drawn up directly before administration and the syringe should be disposed of immediately after use.

Assurance could not be provided that the integrity and sterility of these intravenous medications were maintained from compounding to administration. Both the Theatre Manager and Senior Management were informed of these findings at the time of the inspection for immediate mitigation.

2.3 Key findings relating to hand hygiene

2.3.1 System change⁶ : *ensuring that the necessary infrastructure is in place to allow healthcare workers to practice hand hygiene.*

- There was a lack of consistency as to which products were available at hand hygiene sinks in the recovery room in the Theatre Department and the High Dependency Unit adjacent to St Bridget's Ward. Alcohol gel and soap was available at a sink in the recovery room while moisturiser and soap was available over the hand hygiene sink in the High Dependency Unit. There is the potential that alcohol gel or moisturisers may be inappropriately used instead of liquid soap for hand washing in such circumstances.
- One of the hand hygiene gel dispensers inspected outside the High Dependency Unit was empty at the time of the inspection and the nozzle of the same dispenser was unclean.
- The design of clinical hand wash sinks on St Bridget's Ward did not conform to Health Building Note 00-10 Part C: Sanitary assemblies.¹⁶
- A wall mounted stopwatch is available to monitor the duration of surgical hand preparation in the scrub room. This helped ensure that the duration of surgical hand hygiene is in accordance with the manufacturer's instructions.

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 handrubbing and handwashing, to all healthcare workers.*

- Kilcreene Regional Orthopaedic Hospital provides mandatory hand hygiene training to all staff on a yearly basis over and above the national recommendation of two yearly training.
- High compliance in hand hygiene training was demonstrated in the Theatre Department with 100% staff trained in 2015.
- Authorised persons were informed that 90% of staff at Kilcreene Regional Orthopaedic Hospital had completed hand hygiene training in 2015.

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

National hand hygiene audits

National hand hygiene audit results which are published twice a year for St Luke's General Hospital, Kilkenny incorporate results for Kilcreene Regional Orthopaedic Hospital. Kilcreene Regional Orthopaedic Hospital was last randomly selected to participate in the in the May/ June 2015 audit and achieved a compliance of 93.3%, which was in line with the national target of 90% set by the HSE. **Error! Bookmark**

not defined. Results contained in Table 1 are publically available on the Health Protection Surveillance Centre's website. The combined results show a sustained improvement in hand hygiene compliance from May/June 2014 to the end of 2015.

Period	Result
Period 1 March/April 2011	82.4
Period 2 October/November 2011	85.7
Period 3 June/July 2012	71.4
Period 4 October/November 2012	88.1
Period 5 May/June 2013	87.6
Period 6 October/November 2013	91.9
Period 7 May/June 2014	87.1
Period 8 October/November 2014	88.6
Period 9 May/June 2015	91.9
Period 10 October/November 2015	95.2

Source: Health Protection Surveillance Centre – national hand hygiene audit results.¹⁷

Local hand hygiene audits

- The Theatre Department achieved 100% in their most recent hand hygiene audit which was carried out in October 2015. This was an increase from the previous audit carried out in July and March 2015 where 93.3% and 86.6% compliance was achieved respectively.
- St Bridget's Ward achieved a compliance rate of 100% in hand hygiene audits undertaken in November 2015.

Observation of hand hygiene opportunities

Authorised Persons observed hand hygiene opportunities using a small sample of staff in the inspected areas. This is intended to replicate the experience at the individual patient level over a short period of time. It is important to note that the results of the small sample observed is not statistically significant and therefore results on hand hygiene compliance do not represent all groups of staff across the hospital as a whole. In addition results derived should not be used for the purpose of external benchmarking.

The underlying principles of observation during inspections are based on guidelines promoted by the WHO¹⁸ and the HSE.¹⁹ In addition, Authorised Persons may observe other important components of hand hygiene practices which are not reported in national hand hygiene audits but may be recorded as optional data. These include the duration, technique^γ and recognised barriers to good hand hygiene practice. These components of hand hygiene are only documented when they are clearly observed (uninterrupted and unobstructed) during an inspection. Such an approach aims to highlight areas where practice could be further enhanced beyond the dataset reported nationally.

The Authority observed eight hand hygiene opportunities in total during the inspection. Hand hygiene opportunities observed comprised the following:

- Two before touching a patient
 - Two after touching a patient contact
 - Four after touching patient surroundings.
- Five of the eight hand hygiene opportunities were taken. The three opportunities which were not taken comprised the following:
- Three after touching patient surroundings.
- Of the five opportunities which were taken, the hand hygiene technique was observed (uninterrupted and unobstructed) by the Authorised Persons for four opportunities and the correct technique was observed in three hand hygiene actions.

In addition the Authorised Persons observed:

- One hand hygiene action where there was a barrier to the correct technique. A staff member was wearing more than one plain ring.

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 that were in place were up-to-date, clean and appropriately displayed in the areas inspected.

2.3.5 Institutional safety climate⁶: *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.*

^γ The inspectors observe if all areas of hands are washed or alcohol hand rub applied to cover all areas of hands.

- The hospital performed well in local and national hand hygiene audits. The hospital should continue its efforts to build on hand hygiene compliance achieved to date to ensure that good hand hygiene compliance is achieved and maintained across all clinical areas.

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.

Authorised Persons looked at documentation and practices and spoke with staff relating to infection prevention care bundles in the Theatre Department and on St Bridget's Ward. Overall implementation of peripheral vascular catheter and urinary catheter bundles is well advanced and embedded in the hospital. Policies and procedures were in place to support management of peripheral vascular catheters and urinary catheters. The hospital has been collecting invasive medical devices quality care-metrics since October 2015.

The hospital informed HIQA that have nurses received training with regard to the implementation of care bundles and non-consultant hospital doctors receive training during induction. Staff had a good awareness and knowledge of care bundles.

Documentation reviewed by Authorised persons showed that urinary catheter care bundle elements were checked daily. However, a review of documentation for a urinary catheter care bundle revealed that the indication for catheter insertion was not included as an essential element of the care bundle. Urinary catheter care bundle documentation was otherwise found to be completed.

Peripheral vascular catheter care and urinary care bundles have been fully implemented since June 2015. The hospital has incorporated the insertion and safe management record for peripheral catheters into their national early warning score patient observation chart. Documentation of key component monitoring was recorded twice daily for each patient. Records reviewed showed that, with the exception of insertion signatures, all elements of the peripheral vascular catheter care bundle were recorded.

Monitoring compliance with care bundles is an important process measure for evaluation of a CRBSI preventative programme.²⁰ Active audit of maintenance care bundle compliance and feedback systems around the implementation of peripheral vascular catheter care bundles was evident through discussion with hospital

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

management and a review of documentation. The average percentage compliance rate for the first six months following peripheral vascular catheter care bundle implementation was 92%.

The hospital does not have a system in place to monitor outcome measures such as invasive device related blood stream infection rates. As recommended in national guidelines²⁰ ongoing quality assurance/improvement, risk management and surveillance programmes should be in place to monitor the incidence of infection associated with intravascular catheters.

3. Summary

Overall HIQA found the Theatre Department to be well maintained and generally clean with some exceptions. Good local ownership in relation to infection prevention and control was evidenced in the unit during the inspection.

HIQA notes the infrastructural challenges of the Theatre Department. Notwithstanding this, Kilcreene Regional Orthopaedic Hospital, Kilkenny as the Regional Elective Orthopaedic Hospital for the South East should strive to maintain and improve the hospital infrastructure and environment. In the absence of a Surgical Site Surveillance programme, the hospital does not have appropriate mechanisms in place to assure itself that infrastructural deficits in the Theatre Department do not negatively impact on patients from an infection prevention and control perspective. Information obtained from surgical site surveillance programmes can be extremely important in the context of continuous quality improvement and have been associated with significant reductions in surgical site infection rates.⁹

A review of practice and facilities in relation to current standards on reusable invasive device decontamination should be performed, with any deficiencies addressed to guarantee compliance with the current standards.¹³

Safe injections practice is essential to prevent contamination of intravenous medications administered to patients. HIQA recommends that the hospital reviews local practices relating to the preparation, storage and administration of intravenous anaesthetic medication and controlled drugs and takes action to effectively mitigate the potential risk of microbiological contamination and cross infection.

The hospital has demonstrated a commitment to promoting best practices in hand hygiene and is working towards improving compliance and has achieved the HSE's national compliance target of 90%. **Error! Bookmark not defined.** The hospital should continue to build on hand hygiene compliance achieved to date to ensure that the importance of hand hygiene is embedded within all staff groups in the hospital, that good hand hygiene practice is improved and national targets are maintained.

HIQA notes the progress with regard to the implementation of infection prevention and control care bundles. Kilcreene Regional Orthopaedic Hospital should continue to build on progress to date to provide assurance that device related infections are effectively reduced or prevented.

4. Next steps

The Kilcreene Regional Orthopaedic Hospital, must now revise and amend its quality improvement plan (QIP) that prioritises 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 the Authority with details of the web link to the QIP.

It is the responsibility of the Kilcreene Regional Orthopaedic Hospital to formulate, resource and execute its QIP to completion. The Authority 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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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

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