Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Report of the unannounced inspection at Cork University Hospital and Cork University Maternity Hospital, Cork

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

Date of on-site inspection: 05 May 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

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 the practice in the implementation of infection prevention care bundles. In particular this monitoring is focused 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 delivery[2] 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. 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 Cork University Hospital (CUH) and Cork University Maternity Hospital (CUMH) on 05 May 2016 by Authorized Persons (Inspectors) from HIQA, Katrina Sugrue, Kathryn Hanly, Noreen Flannelly-Kinsella and Gearóid Harrahill between 10.05hrs and 17.20hrs. The areas assessed were:

- **The Neurosurgery GA Ward**, a 25-bedded ward, which comprises three six-bedded rooms, one four-bedded room and three single en-suite rooms
- **The Delivery Unit**, which comprises 12 single delivery rooms including one birthing pool room and one 'home from home' room. This unit also accommodates an additional five-bedded induction room and a three-bedded High Dependency Room
- **Ward 2D**, a 10 bedded ward, which comprises of 10 single en-suite rooms accommodating burns and haematology patients.

In addition, Ward 3B, which was inspected during an unannounced inspection by HIQA on 12 November 2014 and reinspected on 14 January 2015, was re-visited to assess the level of progress which had been made after the 2014 inspection and 2015 re-inspection.

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 Ward 3B after the unannounced inspection on 12 November 2014 and re-inspected on 14 January 2015.

Section 2.2 presents the key findings of the unannounced inspection on 05 May 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 05 May 2016.

Section 2.4 describes the key findings relating to infection prevention care bundles during the unannounced inspection on 05 May 2016.

2.1 Progress since the last unannounced inspection on 14 January 2015

HIQA reviewed the quality improvement plan (QIP)[7] published by Cork University Hospital (CUH) and Cork University Maternity Hospital (CUMH) following the 2015 inspection. Particular focus was placed on embedding a culture of hand hygiene compliance across the hospital. Following the 2015 inspection, the hospital updated their hand hygiene strategy implementation plan based on the World Health Organization (WHO) multimodal improvement strategy[6] which includes a programme of hand hygiene auditing. Monthly hand hygiene audits are performed by local auditors and sent to the Infection Prevention and Control Team. Re-audits are undertaken where compliance is below 75%. Quarterly reports of local hand hygiene audits are fed back to wards and departments.

Hand hygiene training is mandatory for staff in the Cork University Hospital Group every two years and is incorporated as part of the prevention and control of Healthcare Associated Infection education and training programme. It was explained to authorized persons that, following the 2015 inspection, the hospital had addressed the risk of staff leaving mandatory training by ensuring staff swipe into the auditorium and swipe out when training has concluded. A breakdown of attendance at mandatory infection prevention and control training which incorporates hand hygiene training up to February 2016 was viewed. Records provided indicated that 56% of all staff had attended this training in the two years up to February 2016. However, the figures showed that only 33% of medical staff had attended training which was considerably lower than other staff groups. This is a concern to HIQA and should be addressed by the hospital as part of its QIP. It was reported that a penalty system is under consideration to address poor compliance in hand hygiene training attendance by medical staff. Authorized persons were informed that hand hygiene training is supplemented by local ward-based teaching to ensure annual update of hand hygiene knowledge and practice. HIQA was informed that when attendance records were combined a total of 75% staff had attended hand hygiene training within the previous two years.

An amalgamated environmental hygiene audit tool has being developed which combined the infection prevention and control environmental audit tool and the hygiene services audit tool. The multidisciplinary environmental hygiene audit team carries out audits on a weekly pre planned basis. Photos are taken to highlight issues of concern and are included in the audit report. Where compliance of 70% is not

reached the area is re-audited within a three month timeframe. Ward/department managers prepare and present post audit QIPs at the monthly Hygiene Audit Quality Improvement Team Meeting which is chaired by the hospital's Chief Executive Officer.

Progress on a *Legionella* site risk assessment was not made since the 2015 inspection. This issue will be discussed further under key findings of this report.

Improvements in the management of patient equipment on Ward 3B were evident during the 2016 inspection. A new daily patient equipment cleaning checklist had been developed and was in use and completed in full. Disposable cleaning wipes were present on observation monitoring trolleys on the ward, to facilitate the cleaning of equipment between patient uses. However authorized persons were informed that sufficient supplies of cleaning wipes can sometimes be difficult to obtain from the stores department. Progress was also made relating to the management of blood glucose monitors in Ward 3B. Only the equipment required for a single procedure on an individual patient is now brought to a patient bedside. However this was not the case observed in all areas inspected which indicates that more staff training needs to be carried out across the hospital in this regard.

A number of issues and risks relating to transmission based precautions identified in the 2015 HIQA report relating to isolation rooms in Ward 3B remain outstanding. The door of one isolation room was open during the 2016 inspection. The single rooms on Ward 3B, which are used to accommodate patients requiring isolation facilities, do not have clinical hand wash sinks which is not in line with national guidelines. Authorized persons were informed that funding has been allocated for capital works in Ward 3B.

In addition, three patients who required isolation with contact precautions were accommodated in a six-bedded room interspersed between patients who did not require isolation. In the absence of sufficient single rooms, patients requiring transmission based precautions should be grouped (cohorted) together within the room to confine their care to one area and prevent contact with patients without infection.[8] Local risk assessment of the individuals and the environment will be required prior to placement.

2.2 Key findings of the unannounced inspection on 05 May 2016

Prevention of Nosocomial Aspergillosis

Major construction works were ongoing at the hospital at the time of the inspection. Invasive aspergillosis can be linked to demolition, excavation, construction and refurbishment activities within or adjacent to the hospital site. A planned *Aspergillus* contamination-control programme is essential when building work of any nature is planned.

Authorized persons viewed the construction permit which identified:

- the construction activity type (major internal containable activities and major external non-containable activities)
- the population risk groups (High risk)
- a list of preventive measures to control invasive aspergillosis

However, as noted in the 2015 inspection, sufficient evidence was not available to demonstrate that the risk of invasive aspergillosis was being effectively managed on an ongoing basis in line with Criteria 3.4 and 7.6 of the Infection Prevention and Control Standards.[1] For example:

- Inspectors observed that several windows on the ground floor next to construction works were not sealed and some were open.
- There was a lack of documentation relating to the ongoing *Aspergillus* control measures.
- There was no record of education of relevant staff on the prevention and control of invasive aspergillosis during construction work.
- Information leaflets on aspergillosis were not provided to inform patients, relatives of patients, healthcare workers and those involved in the activities of construction, of the risk of aspergillosis during construction work.

National guidelines[9] recommend that following the initial risk assessment by the multidisciplinary team, there should be agreement regarding the ongoing monitoring procedures, reporting arrangements and on the utilisation of a Nosocomial Invasive Aspergillosis Preventive Measures Compliance Checklist.

Implementation of the recommended preventive measures should be assigned to the appropriate groups which extend from ward level to the project manager. Compliance with the agreed recommended environmental control measures should be monitored on a regular basis by the relevant departments – for example the technical services department, the Infection Prevention and Control team and cleaning staff.

Communication and education are vital elements in the successful implementation of proactive infection prevention and control measures to eliminate and or reduce the risk of nosocomial invasive aspergillosis in patients. Effective communication between all parties including architects, engineers, technical services, sub-contractors, infection control personnel, medical and nursing staff is essential during all stages of construction work.

Legionella control

Similar to the findings of the 2015 unannounced inspection, a site risk assessment for *Legionella* was not available to view at the time of this inspection. It was reported to inspectors that tender and procurement for a risk assessment had been unsuccessful on two occasions. HIQA was informed that *Legionella* control measures are in place and are being monitored. However, the failure of the hospital to address this finding is a concern and does not provide assurance that the prevention and control of *Legionella* is effectively managed in a systematic way. National guidelines[10,11] recommend that a *Legionella* risk assessment is performed, reviewed on an annual basis and independently audited every two years. The hospital needs to fully re-evaluate and improve upon its approach to the management of legionella risks in line with Irish national guidelines and legislation and a site legionella risk assessment should be prioritized.[10,11]

Environmental and patient equipment hygiene

Overall the environment and patient equipment hygiene on the Delivery Unit and Ward 2D were generally clean and well maintained with a few exceptions. In contrast, opportunities for improvement were identified during the inspection of the GA Neurosurgery Ward in relation to maintenance and cleaning processes. An overview of these findings is contained in the following section.

<u>GA Neurosurgery Ward</u>

The standard of environmental and equipment hygiene observed on GA Neurosurgery Ward at the time of the unannounced inspection was poor and not in line with national infection control standards[1] or national guidelines[12] for hospital cleaning.

Patient equipment including intravenous stands, temperature probe holders, oxygen saturation probes, blood glucose monitors and holders, were unclean. Organic matter was present on the undersurface of one commode. This is a particular concern as it presents a risk of contamination within the patient environment.[1,12] Details of these risks were communicated to the ward manager and addressed at the time of the inspection. In addition, inspectors observed a lack of consistency regarding the management of blood glucose monitoring equipment. To avoid

inadvertent contamination, only the equipment required for a single procedure on an individual patient should be brought to a patient bedside.

Checklists for patient equipment indicated that cleaning was carried on a weekly basis which is insufficient and not in line with national guidelines.[12] Authorized persons were informed that frequently used patient equipment is cleaned after use however, the cleanliness of equipment assessed at the time of the inspection was inadequate indicating poor compliance with this practice.[12] Similar to the findings highlighted in Ward 3B, disposable cleaning wipes were in short supply.

Insufficient dust control measures and suboptimal cleaning was also observed. Multiple surfaces including ledges, floor edges, skirting boards and radiators were dusty and unclean. The undercarriages and undersurfaces of beds inspected were dusty and stained. The reported cleaning resources allocated to the Neurosurgery GA Ward environment did not provide assurance that the cleanliness of the physical environment can be effectively managed and maintained or is sufficient to respond to the level of cleaning required in this busy clinical area. This issue needs to be addressed as a matter of priority.

Local monthly environmental hygiene audit results indicated high levels of overall compliance in relation to environmental hygiene in GA Neurosurgery Ward. Environmental hygiene audits showed 90% compliance in February 2016, 91% compliance in March, and 86% compliance in April 2016 respectively. Notwithstanding the fact that the 'dirty' utility room findings achieved 70%-75% in these local audits, the overall compliance achieved was not reflective of the findings observed by HIQA during the May 2016 inspection.

The hospital should review patient equipment cleaning frequencies and allocated resources to ensure they are sufficient and in line with best practice. The infrequent cleaning regime for patient equipment was reflective of HIQA's findings at the time of inspection.

Delivery Unit

Overall, the patient equipment and the patient environment in the Delivery Unit were clean and well maintained with a few exceptions. In each delivery room inspected, sterile supplies were inappropriately stored on mobile carts which were not fully enclosed and which had a potential risk of inadvertent environmental contamination. Window blinds in the delivery rooms were made of fabric and therefore not easily cleaned and should be reviewed in the context of the potential risk of contamination.

Inspectors were informed that activity levels in the Delivery Unit are high requiring a high standard of cleaning after each delivery. The cleaning personnel assigned to the Delivery Unit have dual cleaning and catering duties which dilutes the cleaning

resource and may hinder the effectiveness of cleaning practices. HIQA has observed that the operational norm in the majority of hospitals inspected is to have designated cleaning staff for each area to ensure that the hygiene is appropriately managed and maintained and the risk of transmission of infection is mitigated. Inspectors were informed that dual catering and cleaning roles are under review.

Monthly environmental hygiene audits are carried out on the Delivery Unit and in all units in CUMH. Compliance scores are entered on an electronic league table, escalated to and monitored by the Hospital Management Team. The most recent environmental hygiene audit result in the Delivery Unit showed 91% compliance in March 2016. The high levels of compliance were reflected on the day of the inspection.

Ward 2D

Overall, the general environment and equipment in Ward 2D were clean and well maintained. Records viewed showed that local environmental hygiene audits were performed regularly. The ward achieved 92% compliance in the most recent environmental audit carried out in March of 2016. The high levels of compliance achieved in local environmental hygiene audits were also reflected on the day of inspection.

Infrastructure and facilities

GA Neurosurgery Ward

Authorized persons were informed that the 'dirty'[*] utility room in GA Neurosurgery Ward is shared between the Neurosurgery ward and adjoining five day medical ward. Therefore a very high standard of environmental and patient equipment hygiene is required to prevent inadvertent contamination to these patients. However, the cleanliness of the 'dirty' utility room observed at the time of the inspection did not meet required standards. In addition, the design, allocated space and general maintenance of walls, floor covering and fixtures did not facilitate effective infection prevention and control. Access to the clinical hand wash sink was restricted due to the storage of three double linen trolleys and three commodes in this room. HIQA acknowledges the frustration felt by staff due to the lack of progress made regarding addressing the infrastructural deficiencies in the 'dirty' utility room. Notwithstanding the challenges posed by the infrastructure, and whilst awaiting the planned renovations, an acceptable standard of basic cleanliness and maintenance is both essential and achievable.

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

The clean utility room was unsecure allowing unauthorized access. The room opened directly into an open administration area and the corridor and this room was used for storing sterile supplies and consumables including drugs. The storage of sterile items was not in line with best practice guidelines. Sterile consumables were stored inappropriately in open shelves and some were stored in close proximity to a sink. Because of the risk of contamination, sterile supplies should be stored in fully enclosed storage unit shelving in order to prevent inadvertent contamination. Authorized persons were informed that proposed plans to install enclosed storage units were progressing. There was no designated clinical hand wash sink in this room although a multi-purpose sink was available. There was no dedicated surface for the preparation of intravenous medications due to the restricted space and cluttered work tops. HIQA recommends that a clearly defined space for medication preparation is identified. The multiple risks identified during this inspection need to be effectively managed in the interim of a refurbished clean utility room.

Ward 2D

A washing machine and dryer used to launder patient's clothing was inappropriately located in the 'dirty' utility room of Ward 2D. HIQA recommends that the hospital review these laundering facilities from an infection prevention and control context and to also ensure compliance with best practice guidelines.

There was one sink in the 'dirty' utility room which was designated a hand wash sink. A separate sink for washing patient equipment was not available so it was difficult to determine if the hand wash sink had a dual function. Using sinks for both hand-washing and the cleaning of equipment should be discouraged as this will significantly increase the risk of hand and environmental contamination. In addition there was no sluice hopper for disposal of body fluids in this room.

Similar to GA Neurosurgery and Ward 3B, there was no door on the clean utility room used for storing sterile supplies and consumables, including infusion fluids, and for storing and preparing medicines, including controlled drugs.

The single en-suite rooms with an air extract systems used for protective isolation had suspended ceilings. Rooms used for protective isolation should have sealed solid ceilings as dust and fungal spores may accumulate on the upper surface of suspended ceiling tiles over time, and their dispersal on tile removal or manipulation may pose an inhalation risk to immunocompromised patients.[14]

Facilities for putting on and removing personal protective equipment, and washing hands, are provided in a common anteroom shared between each set of patient rooms. Ideally anterooms should not be shared between isolation rooms.

2.3 Key findings relating to hand hygiene

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

- In the Neurosurgery GA Ward the clinical hand wash sink in the 'dirty' utility room and the clean utility room did not conform to Health Building Note 00-10 Part C: Sanitary Assemblies.[13]
- In addition, on the Neurosurgery GA Ward alcohol hand rub was not consistently available at the point of care.
- In the Delivery Unit, there was no clinical hand wash sink in the clean utility room.
- Furthermore, in the delivery rooms inspected, the clinical hand wash sink had swan-neck tap outlet which is not recommended as they do not empty after use.[14]

2.3.2 Training/education[6] **:** *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.*

- Hand hygiene training in the CUH Group is mandatory every two years. Additional training is provided at ward level by the Infection Prevention and Control Team, if required.
- In both CUH and CUMH staff members have received training, in both hand hygiene education and auditing practices from the Infection Prevention and Control Team, thereby improving hand hygiene awareness at ward level.
- Up-to-date hand hygiene training records are available on an electronic spreadsheet which is overseen by the area managers and senior management teams at both sites.
- In the Delivery Unit, high compliance in hand hygiene training was demonstrated with 90% of staff trained in 2016.
- In the GA Neurosurgery Ward, it was reported that 100% of staff were up-to-date with yearly hand hygiene training which is above the mandatory two year training requirement.
- Authorized persons also reviewed local training records on Ward 2D which documented that 100% of staff had attended hand hygiene training in the previous two years.
- Authorized persons were informed that patients also receive education and information on the importance of hand hygiene.

2.3.3 Evaluation and feedback[6]**:** *monitoring hand hygiene practices and infrastructure, along with related perceptions and knowledge among health-care workers, while providing performance and results feedback to staff.*

- Patient feedback questionnaires are distributed to patients to inform the service about the patient's experience. The questionnaire is currently under review.
- It was reported that patient interviews are conducted during the management team walkabouts with a focus on hand hygiene.

National hand hygiene audits

Cork University Hospital Group began participating in the national hand hygiene audits from May/June 2014. The results listed in Table 1 include the overall compliance in Cork University Hospital (CUH) and Cork University Maternity Hospital (CUMH). The overall compliance for Oct/Nov 2015 was 84.3% which is lower that the Health Service Executive's (HSE's) national target of 90% compliance.[15] However there has been an incremental improvement in hand hygiene since the hospital began participation in HSE national hand hygiene audits in 2014. Both CUH and CUMH have demonstrated a commitment to promoting best practice in hand hygiene and are working towards improving compliance to attain the HSE's national compliance target of 90%.[15] An overview of Cork University Hospital Group national hand hygiene audit results are presented in Table1.

Table 1: Cork University Hospital and Cork University Maternity Hospital national hand hygiene audit results.

Period 1-10	Result
Period 1 March/April 2011	No Data
Period 2 October/November 2011	No Data
Period 3 May/June 2012	No Data
Period 4 Oct/Nov 2012	No Data
Period 5 May/June 2013	No Data
Period 6 Oct/Nov 2013	No Data
Period 7 May/June 2014	73.3%
Period 8 Oct/Nov 2014	74.8%
Period 9 May/June 2015	75.2%
Period 10 Oct/Nov 2015	84.3%

Source: Health Protection Surveillance Centre – national hand hygiene audit results.[16]

Local hand hygiene audits

- In addition to twice yearly national hand hygiene audits, local hand hygiene audits are also carried out each month across the hospital in all patient care areas by trained and validated hand hygiene auditors.
- Where poor compliance is demonstrated additional hand hygiene education is provided by the Infection Prevention and Control Nurse at ward level.
- Results of hand hygiene audits carried out in 2016 indicate that Ward 2D has achieved 70% and 90% compliance in February and March respectively.
- Local hand hygiene audits which are conducted monthly in the Delivery Unit, are displayed on notice boards on the corridor. Local hand hygiene audits conducted in January, February and March 2016 showed compliance of 70%, 100% and 95% respectively. The most recent local hand hygiene audit in the Delivery Unit was carried out in April 2016. Compliance was highest among midwifery staff who achieved 100% compliance. Poor compliance of 55% was identified among medical staff. This result is reflective of the overall attendance of medical staff at mandatory training as discussed in section 2.1. Authorized persons were informed that corrective action with additional education sessions has taken place for Medical Staff since the April audit and a follow-up audit is due to be undertaken in May.

Observation of hand hygiene opportunities

Authorized 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 of hand hygiene practices during inspections are based on guidelines promoted by the WHO[17] and the HSE.[18] In addition, authorized 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[ϒ] 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.

[ϒ] The inspectors observe if all areas of hands are washed or alcohol hand rub applied to cover all areas of hands.

HIQA observed 22 hand hygiene opportunities in total during the inspection. Hand hygiene opportunities observed comprised the following:

- three before touching a patient
- one before a clean and or aseptic procedure
- one after body fluid exposure risk
- three after touching a patient
- 14 after touching patient surroundings

14 of the 22 hand hygiene opportunities were taken. The eight opportunities which were not taken comprised the following:

- two before touching a patient
- one before clean and or aseptic procedure
- one after touching a patient
- four after touching patient surroundings

Of the 14 opportunities which were taken, the hand hygiene technique was observed (uninterrupted and unobstructed) by the authorized persons for 14 opportunities and the correct technique was observed in 8 hand hygiene actions.

2.3.4 Reminders in the workplace[6]**:** *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, clean and appropriately displayed in the areas inspected at Cork University Hospital and Cork University Maternity Hospital.
- Credit card sized hand hygiene information cards have been developed for patients and visitors.
- Hand hygiene advisory posters for patients were not observed in the toilets of the Delivery Rooms.

2.3.5 Institutional safety climate[6]***:*** *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*.

- HIQA has found that following the 2015 inspection, both CUH and CUMH have demonstrated a commitment to improving hand hygiene awareness and practices. HIQA notes that the hospitals have adopted a multimodal strategy in improving hand hygiene practices.
- Authorized persons were informed of recent initiatives, such as participation in the world hand hygiene day, a 'bare below the elbow' awareness day, hand

hygiene reminders being used as screen savers on desk computers and the commissioning of a hand hygiene training video.

- The hospital has demonstrated a commitment to improving hand hygiene practice at all levels. Measures implemented to date should be continued to ensure that recent improvements in hand hygiene practice are maintained in all clinical areas and across all staff groups and that national targets[17] are attained.

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.[3,19] Authorized persons reviewed documentation and practices and spoke with staff relating to infection prevention care bundles in the areas inspected and visited.

Peripheral vascular catheters (PVC)

Overall, peripheral vascular catheter (PVC) care bundles are at an advanced stage of implementation within CUH and CUMH. Audit of care bundle compliance and feedback systems in relation to the implementation of peripheral vascular catheters were evident through discussion with ward managers and hospital management. On the GA Neurosurgery Ward, authorized persons were informed that, following training by the Intravenous Infusion Nurse, nurses have commenced auditing PVC care bundle compliance. In a recent audit on GA Neurosurgery Ward, documentation viewed showed a compliance rate of 54%. This low level of compliance demonstrates the need for ongoing audit followed by targeted training and education to ensure compliance with the PVC's care bundles. On the Delivery Unit, PVC care bundles are commenced on patient admission and continued when the patients are transferred to the ward areas.

Central venous access devices

The central venous access device nursing care plan viewed on Ward 2D incorporated five key care bundle interventions for the prevention of infection associated with the use of these devices. However audit tools were not used to measure adherence to the central venous access device care bundle elements. Monitoring compliance with care bundles are important process measures for evaluation of a catheter related bloodstream infection (CRBSI) preventative programme. These results should be reviewed and fed back to relevant ward areas and senior management at regular intervals to maintain vigilance and sustain improvement.

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

Invasive device surveillance

Cork University Hospital reports local rates of meticillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infection on a quarterly basis in line with HSE key performance indicators (KPI) which is less than 0.057 cases per 1,000 bed-days used. The hospital's KPI data for MRSA bloodstream infection in quarter three 2015 was 0.086 cases per 1,000 bed-day used. However authorized persons were informed that there is no invasive device surveillance programme in place in the 2D Haematology Ward. A CRBSI surveillance programme should be introduced to the haematology unit to determine healthcare associated (HCA) CRBSI rates, monitor trends in rates, and assist in identifying lapses in infection prevention and control practices in this high risk patient population.[19]

Urinary catheters

Urinary catheter management was included in individualised care plans for patients however, urinary catheter care bundles have not been implemented by the hospital to date. Authorized persons were informed that the hospital plans to implement urinary catheter care bundles. It is recommended that the implementation should be progressed in line with national guidelines.

Overall, HIQA found that the hospital is working towards compliance with Standard 8 of the Infection Prevention and Control Standards and is committed to improving the management of invasive devices. However, effective care bundle implementation also requires audit and feedback on adherence to policy and surveillance and reporting of associated device related infection.

3. Summary

It was apparent that Cork University Hospital and Cork University Maternity Hospital is actively endeavouring to address deficiencies previously identified in the unannounced HIQA inspections carried out in 2014 and 2015. Ongoing monthly environmental hygiene auditing in all clinical areas at both hospitals is commendable and demonstrates a commitment to improving the patient environment.

Overall, the general environment and equipment in Ward 2D and the Delivery Unit were clean and well maintained. However, improvements are required in the management of the cleanliness of the physical environment in Neurosurgery GA Ward. HIQA recommends that the hospital reviews cleaning processes, resources and the oversight of hospital hygiene in Neurosurgery GA Ward. Older and poorly designed hospital infrastructure is more difficult to clean, this needs to be taken into consideration when allocating cleaning resources. The disparity seen in the standards of cleanliness between Neurosurgery GA Ward and other areas inspected is a possible reflection of poor infrastructural condition and maintenance of the ward, poor cleaning processes which are not standardised across the hospital and insufficient allocation of cleaning resources.

The prevention of healthcare associated invasive aspergillosis during construction activities in the hospital at the time of the inspection raised concern for HIQA. While there were some controls in place to mitigate the risk of invasive aspergillosis, regular review of control measures along with comprehensive education of all relevant personnel and the provision of information leaflets had not been implemented in line with the national guidelines.[9]

In relation to *Legionella* control, it is recommended that the hospital adopts a more thorough and systematic approach to the management of *Legionella* bacteria, through commissioning an independent risk assessment, and full implementation and documentation of any required preventative or corrective maintenance measures identified in line with Irish national guidance.[10, 11]

HIQA notes that the hospital has also made significant progress since the 2015 inspection in adopting a multimodal strategy to improving hand hygiene practices. However, poor uptake of hand hygiene training by medical staff is a concern and should be addressed by the hospital as part of its QIP. As variation in performance among disciplines can affect overall hospital hand hygiene compliance scores, it is recommended that targeted educational and audit is performed in order to drive improvement in hand hygiene compliance. The hospital needs to continue to build on the awareness and best practices relating to hand hygiene to ensure that its performance is improved particularly in reaching the national target[20] of 90% hand hygiene in both the national and local audits.

It is recommended that the implementation of Urinary Catheter Care bundles should be progressed in line with national guidelines. The routine application of infection prevention care bundles has been proven to reduce device related infection internationally, and has been recommended in relevant national guidelines and the National Standards for the Prevention and Control of Healthcare Associated Infection, for a number of years. Monitoring compliance with care bundles are important process measures for evaluation of a CRBSI preventative programme. These results should be reviewed and fed back to relevant ward areas and senior management at regular intervals. In addition ongoing surveillance programmes should be put in place to monitor the incidence of infection associated with intravascular catheters in high risk areas. Cork University Hospital and Cork University Maternity Hospital need to continue to build on the progress to date to fully embed infection prevention care bundles into routine practice in the best interest of patients.

4. Next steps

The Cork University Hospital and Cork University Maternity 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 HIQA with details of the web link to the QIP.

It is the responsibility of the Cork University Hospital and Cork University Maternity Hospital 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.

5. References[¥]

[1] Health Information and Quality Authority. *National Standards for the Prevention and Control of Healthcare Associated Infections.* Dublin: Health Information and Quality Authority; 2009. [Online]. Available from: http://www.hiqa.ie/publication/national-standards-prevention-and-control-healthcare-associated-infections.

[2] Health Information and Quality Authority. *Guide: Monitoring Programme for unannounced inspections undertaken against the National Standards for the Prevention and Control of Healthcare Associated Infections.* Dublin: Health Information and Quality Authority; 2015. [Online]. Available from: http://www.hiqa.ie/system/files/Guide-to-HCAI-Unannounced-Inspections-2015.pdf

[3] Health Protection Surveillance Centre. *Prevention of Intravascular Catheter - related Infection in Ireland. Update of 2009 National Guidelines September 2014.* 2014 [Online]. Available from: http://www.hpsc.ie/A-Z/MicrobiologyAntimicrobialResistance/InfectionControlandHAI/IntravascularIVlines/Publications/File,14834,en.pdf

[4] Health Protection Surveillance Centre. *Guidelines for the prevention of catheter-associated urinary tract infection. SARI Working Group.* 2011. [Online]. Available from: https://www.hpsc.ie/A-Z/MicrobiologyAntimicrobialResistance/InfectionControlandHAI/Guidelines/File,12913,en.pdf

[5] Loveday H.P., Wilson J.A., Pratt R.J., Golsorkhi M., Tingle A., Bak A., Browne J. et al (2014) epic 3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England. Journal of Hospital Infection. 2014 January, Volume86, Supplement 1: ppS1-S70. [Online] Available from: http://www.sciencedirect.com/science/article/pii/S0195670113600122

[6] World Health Organization. *A Guide to the Implementation of the WHO Multimodal Hand* Hygiene Improvement Strategy. Revised August 2009. [Online]. Available from: http://www.who.int/gpsc/5may/tools/system_change/en/.

[7] Cork University Hospital and Cork University Maternity Hospital 2015. Available from: http://cuh.hse.ie/News-and-Events/Publications/CUH-Hygiene-Quality-Improvement-Plan-April-2015.pdf

[¥] All online references were accessed at the time of preparing this report.

[8] Department of Health. 2013. Prevention and Control Methicillin-Resistant *Staphylococcus aureus* (MRSA) National Clinical Guideline No. 2. National Clinical Effectiveness Committee. http://www.hpsc.ie/A-Z/MicrobiologyAntimicrobialResistance/InfectionControlandHAI/Guidelines/File,14478,en.pdf

[9] The Health Protection Surveillance Centre. National Guidelines for the Prevention of Nosocomial Aspergillosis. A Report of the Aspergillosis Subcommittee of the Health Protection Surveillance Centre Scientific Advisory Committee. Consultation draft 2016 v01.0. [Online]. Available from: https://www.hpsc.ie/A-Z/Respiratory/Aspergillosis/ConsultationDraftGuidance/File,15609,en.pdf

[10] The Health Protection Surveillance Centre. Guidelines for the Prevention and Control of Infection from Water Systems in Healthcare Facilities [Online]. Available from: http://www.hpsc.ie/AboutHPSC/ScientificCommittees/Sub-CommitteesofHPSCSAC/WaterGuidelinesSub-Committee/File,14451,en.pdf

[11] Health Protection Surveillance Centre. National Guidelines for the Control of Legionellosis in Ireland, 2009. Report of Legionnaires Disease Subcommittee of the Scientific Advisory Committee. [Online]. Available from: http://www.hpsc.ie/AboutHPSC/ScientificCommittees/Publications/File,3936,en.pdf

[12] Health Service Executive. Cleaning Manual – Acute Hospitals [Online] Available from:http://hse.ie/eng/services/publications/Hospitals/HSE_National_Cleaning_Standards_Manual.pdf

[13] Department of Health, United Kingdom. Health Building Note 00-10 Part C: Sanitary Assemblies. [Online]. Available from: http://www.dhsspsni.gov.uk/hbn_00-10_part_c_l.pdf .

[14] Department of Health, United Kingdom. Health Building Note 00-09. Infection control in the built environment. 2013. [Online]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/170705/HBN_00-09_infection_control.pdf

[15] Health Service Executive. *National Service Plan 2015.* [Online]. Available from: http://www.hse.ie/eng/services/publications/corporate/sp2015.pdf.

[16] The Health Protection Surveillance Centre. *National Hand Hygiene Audit Results.* [Online]. [Online]. Available from: http://www.hpsc.ie/hpsc/A-Z/Gastroenteric/Handwashing/HandHygieneAudit/HandHygieneAuditResults/.

[17] World Health Organization. *Guide to Hand Hygiene in Healthcare and WHO Hand Hygiene Technical Reference Manual*. [Online]. Available from:http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf?ua=1

[18] Health Service Executive. *Hand Hygiene Observation Audit Standard Operating Procedure April 2013*. [Online]. Available from: http://www.hpsc.ie/hpsc/A-

Z/Gastroenteric/Handwashing/HandHygieneAudit/HandHygieneAuditTools/File,12660,en.pdf.

[19] Royal College of Physicians of Ireland. Prevention of Intravascular Catheter-related Infection in Ireland. Partial update of 2009 National Guidelines. 2014 http://www.hpsc.ie/A-Z/Hepatitis/GuidanceforRenalUnits/File,4115,en.pdf

[20] Health Service Executive. *National Service Plan 2015.* [Online]. Available from: http://www.hse.ie/eng/services/publications/corporate/sp2015.pdf.

Published by the Health Information and Quality Authority.

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