



**Health  
Information  
and Quality  
Authority**

An tÚdarás Um Fhaisnéis  
agus Cáilíocht Sláinte

# **Report of the unannounced inspection at Midland Regional Hospital, Tullamore, Co Offaly.**

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

Date of on-site inspection: 28 May 2015

## **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*.<sup>1</sup> The inspection approach taken by the Authority is outlined in guidance available on the Authority's website, [www.hiqa.ie](http://www.hiqa.ie) – *Guide: Monitoring Programme for unannounced inspections undertaken against the National Standards for the Prevention and Control of Healthcare Associated Infections*.<sup>2</sup>

The purpose of the unannounced inspection is to assess hygiene as experienced by patients at any given time. It focuses specifically on the observation of the day-to-day delivery of hygiene services, in particular environmental and hand hygiene under the following standards:

- Standard 3: Environment and facilities management
- Standard 6: Hand hygiene.

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 2015, unannounced inspections will aim to identify progress made at each hospital since the previous unannounced inspection conducted in 2014.

An unannounced inspection was carried out at Midland Regional Hospital, Tullamore on 28 May 2015 by Authorised Persons from the Authority, Aileen O' Brien, Katrina Sugrue, Aoife Lenihan and Christopher Mc Cann between 08:55hrs and 15.45hrs. The areas assessed were:

- The **Renal Dialysis Unit** which comprises sixteen dialysis stations. The unit is configured such that there are 11 dialysis stations within an open plan area in the main unit and a dialysis station in each of two ensuite isolation rooms. An additional three dialysis stations are located within a three bay room in an adjacent medical ward.
- The **Day Hospital** which comprises 23 trolleys and one ensuite single room. There are two areas with eight bays and one area with seven bays.

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

## **2. Midland Regional Hospital Tullamore Profile<sup>‡</sup>**

The Midland Regional Hospital at Tullamore was built at a cost of €150m and is one of the few purpose-built, standalone hospital buildings outside of Dublin, it opened on a phased basis between May 2007 and December 2008.

Since the initial opening in 2007 the hospital won Best Health Care Building at the Irish Architectural Awards and received international recognition when it was 'highly commended' at the Building Better Healthcare Awards in 2009.

The hospital is the regional centre for orthopaedics, ENT, rheumatology, nephrology/renal dialysis, oncology and haematology. It also provides services in the specialities of general medicine, general surgical, endoscopy, cardiology and palliative care. Outreach clinics are held for obstetrics/gynaecology, paediatrics, ophthalmic and vascular patients. The hospital has four major operating theatres together with one minor theatre in the Day Hospital. The hospital also has a dedicated endoscopy suite.

The full range of clinical support services are available onsite including radiology, pathology, physiotherapy, occupational therapy, speech and language therapy, clinical nutrition and dietetics, oncology pharmacy, general pharmacy, audiology, hydrotherapy pool, cardiology and pastoral care. The hospital has a high specification fibre optic IT system which supports the patient administration system and a filmless x-ray system.

In addition, the hospital has nine fully landscaped internal courtyards, and has a large concourse/entrance area with waiting area and children's play area, café and shop facilities.

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<sup>‡</sup> The hospital profile information contained in this section has been provided to the Authority by the hospital, and has not been verified by the Authority.

### **3. 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 information and to inform ongoing improvement measures. However, the overall nature of the key findings of relevance is within this report.

This report is structured as follows:

- **Section 3.1** describes the progress achieved since the last unannounced inspection on 26 February 2014.
- **Section 3.2** presents high risks identified during the unannounced inspection on 28 May 2015.
- **Section 3.3** describes additional key findings from the unannounced inspection on 28 May 2015.
- **Section 3.3** describes the key findings relating to hand hygiene under the headings of the five key elements of the World Health Organization (WHO)<sup>3</sup> multimodal improvement strategy during the unannounced inspection on 28 May 2015.

#### **3.1 Progress since the last unannounced inspection on 26 February 2014**

The Authority reviewed the quality improvement plan (QIP) published by Midland Regional Hospital Tullamore<sup>4</sup> following the February 2014 inspection. The QIP shows that eight of the nine actions identified in the QIP were given the status 'ready' and it was evident that the QIP was reviewed and updated between the 2014 and 2015 inspections. During the 2014 inspection, the two areas assessed were found to be clean and well maintained with minimal non-compliance with the standards. As a result, a revisit of these wards was not deemed necessary by the Authority during the 2015 inspection.

#### **3.2 High risks identified during the unannounced inspection on 28 May 2015**

Information gathered during the unannounced inspection, and through subsequent correspondence with the hospital identified a number of high risks in respect of infection prevention and control at the Midland Regional Hospital Tullamore. These risks included;

- poor performance against national Healthcare Associated Infection related key performance indicators, including a higher than expected rate of *Clostridium difficile* infection at the hospital since the last quarter of 2013.

- insufficient processes to accurately quantify the incidence of post-operative infection in one patient group and to proactively analyse and address a potentially increased infection incidence.

The collective nature of these risks at the hospital resulted in the Authority writing to both the hospital, and subsequently the Chief Executive Officer of the Dublin Midland Hospital Group to seek assurances in relation to the governance of these issues.

### **National HSE performance indicators and expected targets**

National performance indicators and expected targets are determined by the HSE annually which all hospitals and services should work towards. The prevention of healthcare associated infections is a service priority for the HSE.<sup>5</sup> National performance indicators relating to healthcare associated infections which are monitored and reported in each hospital include staff hand hygiene compliance, Meticillin-resistant *Staphylococcus aureus* (MRSA) blood stream infections, *Clostridium difficile* associated infection, and antibiotic consumption. Documentation viewed by the Authority indicated that at the time of this inspection on 28 May, the most recently reported Midland Regional Hospital Tullamore rates of MRSA blood stream infection, new cases of *Clostridium difficile* infection and antibiotic consumption rates were all in breach of the national targets set by the HSE. In addition, the hospital has not met the minimum target for hand hygiene compliance set by the HSE since reporting began in 2011.

### **An increased incidence of *Clostridium difficile* infection**

Documentation viewed by the Authority indicated that the hospital has experienced a significant and persistent increase in the incidence of *Clostridium difficile* associated infection since the beginning of quarter 1, 2014 to the end of quarter 1, 2015. The Authority sought further explanation regarding the increased incidence of *Clostridium difficile*.

In response to the increased incidence of *Clostridium difficile* in quarter 1, 2014, an outbreak control team was convened in the hospital. The outbreak control team report in October 2014 indicated that cases were not confined to one ward and were not all the same strain type. The report identified likely contributory factors for increased *Clostridium difficile* infection incidence which included;

- antimicrobial prescribing practice,
- poor environmental hygiene,
- increased hospital activity and rapid patient turnover,
- a key management position that was vacant for more than two years likely impacted upon environmental hygiene processes,
- nursing and support staff shortages,

- a change in the laboratory testing method for *Clostridium difficile* which resulted in greater detection of positive results.

Improvements in environmental cleaning, isolation facilities, staff training, staffing resources and feedback to staff regarding healthcare associated infection and antimicrobial stewardship data were recommended in the outbreak report.

Measures undertaken to address the high incidence of *Clostridium difficile* infection were aligned to many of the recommendations of the October 2014 report. These included measures to improve awareness amongst pharmacy staff and clinicians of the increased incidence of *Clostridium difficile* infection, and the need for prudent antimicrobial usage. Advice to prescribers included appropriate usage of proton-pump inhibitor (stomach acid suppressant) medication which has been associated with an increased risk of *Clostridium difficile* infection. The frequency of hygiene audits in targeted areas of the hospital was increased in addition to ongoing education of staff regarding hand hygiene.

On the day of the inspection, clinical areas viewed by the Authority were generally clean. However, documentation provided to the Authority did not provide assurance that all the issues identified in the 2014 outbreak report had been addressed in full. For example, hand hygiene performance remained persistently below national targets set by the HSE, and at the time of this inspection it was reported to the Authority that only 39% of staff were up-to-date with mandatory hand hygiene training. Deficiencies in respect of accurately quantifying the number of staff trained were reported.

Overall antimicrobial usage volume at the hospital has increased significantly since 2011. Documentation reviewed by the Authority revealed that the hospital is aware that antimicrobial usage is greater than it should be for a hospital of the size and type of the Midland Regional Hospital Tullamore. The hospital has implemented measures aimed at positively influencing prescribing practice, and has targeted prescribing education around reducing the risk of *Clostridium difficile* infection. Despite these measures, the overall usage volume of antimicrobials remains higher than desirable.

Following the outbreak report in 2014, the frequency of environmental hygiene auditing in the hospital was increased, however, a key management position with responsibilities for environmental hygiene was not filled despite being identified as a risk in the report. Essentially there was no senior manager in charge of environmental hygiene at the time of this inspection. In addition, documentation provided by the hospital demonstrated that a surveillance scientist post in the hospital remains vacant, resulting in deficiencies in infection surveillance at the hospital.

At the time of this inspection, the incidence of *Clostridium difficile* infection remained high relative to 2015 national HSE targets. It is therefore imperative that composite risks in relation to *Clostridium difficile* infection are fully addressed in a timely manner. There was considerable room for improvement in hand hygiene compliance, and a need to implement an effective antimicrobial stewardship programme with strong clinical leadership, in order to effectively reduce *Clostridium difficile* infection rates.

### **Surveillance of surgical site infection rates**

Correspondence with the hospital following the inspection highlighted a potentially high rate of surgical site infection in one service. This concern prompted the Authority to seek further assurances from the Dublin Midlands Hospital Group to evaluate the likely infection incidence rate in this patient population.

Subsequent correspondence on behalf of the Dublin Midlands Hospital Group to the Authority revealed deficiencies in relation to surgical site infection surveillance performance and related governance structures. The Authority was not assured that the hospital had an effective surgical site infection surveillance programme in place. An effective surgical site infection programme should establish rates of infection in targeted patient groups and the information should be used to detect variance in infection rates and to guide improvements where necessary.

Further investigation by the Hospital Group Management Team identified that although the rate of infection in this service was higher than desirable, it was significantly lower than suggested by original data provided to the Authority which triggered the initial concern. The Authority notes that the hospital has subsequently undertaken a review and validation of surveillance data.

### **Reported changes implemented by the Midland Regional Hospital Tullamore following the Authority's inspection to address these risks.**

In responding to the Authority, the Dublin Midlands Hospital Group submitted an assurance report to HIQA outlining measures implemented to manage the risks identified during this inspection.

The hospital reported improvement in respect of *Clostridium difficile* infection prevention and management with emphasis on prescribing practice, hand hygiene training and environmental hygiene. Staffing resource deficiencies are being addressed and clinical governance structures have been revised. The hospital has reported a decrease in the incidence in *Clostridium difficile* infection since April 2015.

Correspondence from the Hospital Group also stated that the Midland Regional Hospital Tullamore and the Dublin Midlands Hospital Group have instituted a programme of leadership walk-arounds to better promote assurances against

defined criteria. The hospital group communicated to the Authority that ongoing surveillance and reduction in the incidence of surgical site infection will remain a priority across the group. In the interim, the group management team expressed that they were satisfied that the integrity of services and quality of patient safety is maintained for all patients at the Midland Regional Hospital Tullamore.

### **3.3 Additional key findings from the unannounced inspection on 28 May 2015**

#### **Renal Dialysis Unit facilities**

Overall, the environment and equipment in the Renal Dialysis Unit were clean and well maintained and it was evident that there was good local ownership in relation to environmental hygiene and infection prevention and control issues. It was reported that demand for renal dialysis services continues to increase in the area with the result that additional dialysis stations have been opened in an adjacent medical ward. In addition, there are plans to commission extra dialysis stations in another part of the hospital.

Opportunities for improvement were identified in relation to the infrastructure of the unit. Toilet facilities for patients were insufficient to meet the needs of the increased number of patients attending the unit particularly at changeover time between dialysis sessions. It is recommended that sufficient toilet facilities are provided and that these have suitable hand hygiene facilities. The number and location of clinical hand wash sinks within the main unit is not in line with best practice guidelines and should be reviewed.<sup>6</sup>

Spatial separation between dialysis stations located within the adjacent medical ward was not ideal and should be reviewed in order to facilitate effective infection prevention and control and environmental hygiene.

It is recommended that planned additional dialysis stations and related facilities are designed and configured in line with international best practice guidelines for renal dialysis units.<sup>7</sup>

#### ***Legionella* control**

Evidence viewed at the time of inspection indicated that a risk assessment for the prevention and control of *Legionella* was last carried out at Midland Regional Hospital Tullamore in 2012 by an external company. Midland Regional Hospital Tullamore next completed a desktop review of this risk assessment in January 2015. This internal review was carried out by the hospital environmental committee. Many of the risk ratings applied by the external assessor during the 2012 risk assessment were downgraded as a result of the hospital's internal review in 2015. National guidelines recommend that review of the *Legionella* risk assessment is carried out

each year and in addition 'it is recommended that ideally those appointed to carry out the risk assessment are independent of those appointed to implement the control measures and remedial actions'.<sup>8</sup> It is recommended that *legionella* control risk assessments are conducted in accordance with national recommendations.<sup>8</sup>

### **Endoscope reprocessing unit**

The layout of the endoscopy reprocessing unit located in the Day Hospital did not allow for segregation of 'dirty' and 'clean' activities.<sup>9</sup> It was of concern to the Authority that one person was assigned to 'dirty' and 'clean' activities in addition to cleaning of the decontamination unit. Personal protective equipment was worn during the decontamination of endoscopes such as a plastic apron, gloves and a face shield however full skin protection from splashes was not facilitated as a long sleeve gown was not worn. The Authority recommends that the hospital review the facilities, processes and practices relating to the endoscopy reprocessing to determine compliance with the current standards and to assure itself that infection control risks are managed, minimised or mitigated.

### **Increased MRSA bloodstream infection rates**

An increased incidence of Meticillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infection was also identified in documentation provided by the hospital to the Authority. Further investigation revealed that the hospital had undertaken an analysis of three cases of healthcare associated MRSA blood stream infections. This analysis indicated that poor compliance with the hospital's intravenous access device management guidelines was a contributory factor.

In response to this, a number of measures were implemented to increase compliance and reduce the incidence of MRSA blood stream infections. Such measures included a checklist for central vascular catheter insertion, care bundles for patients with intravascular devices, care bundle compliance audit, revised guidelines and staff education on the management of intravascular devices and the introduction of disinfection caps for central vascular catheters.

## **3.4 Key findings relating to hand hygiene**

**3.4.1 System change<sup>3</sup>:** *ensuring that the necessary infrastructure is in place to allow healthcare workers to practice hand hygiene.*

- The design of clinical hand wash sinks in the two areas assessed did not conform to Health Building Note 00-10 Part C: Sanitary assemblies.<sup>10</sup> As part of the hospitals hand hygiene strategy a phased replacement programme is in place for hand wash sinks which prioritises high risk areas.
- Lime scale build up was noted on some of the sink fixtures in the Day Hospital. Several of the wall mounted mixer taps were difficult to turn on. The

Authority was informed that this issue was being addressed by a sink replacement programme evident in the preparation room at the time of the inspection.

- Alcohol hand gel was available at most points of care in both areas assessed. However, access to hand gel was restricted in one area in the Day Hospital due the location of the hand gel behind a patient treatment chair.

**3.4.2 Training/education<sup>3</sup>:** *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.*

- Staff are required to attend mandatory hand hygiene training every two years. At the time of the inspection, information provided indicated that only 39% of clinical staff had attended mandatory hand hygiene training in the previous two years. This low level of compliance in mandatory hand hygiene training attendance is unacceptable within a hospital environment and does not comply with national guidelines<sup>10</sup> and the Standards.<sup>1</sup>
- Hand hygiene training is provided in the hospital by the Infection Prevention and Control Nurses one day each month. The hospital is aiming to offer the HSE e-Learning programme to non-clinical staff in the near future (the HSE's online resource for learning and development) once the challenges posed by the computer systems in place have been addressed.<sup>11</sup> An external company has also carried out hand hygiene audits at the request of the hospital.

**3.4.3 Evaluation and feedback<sup>3</sup>:** *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**

Midland Regional Hospital Tullamore participates in the HSE national hand hygiene audits which are published twice a year.<sup>12</sup> Results contained in Table 1 are publically available on the Health Protection Surveillance Centre's website. The hospital has failed to meet the 90% minimum compliance target set by the HSE<sup>5</sup> since October/November 2011 and consistent increases in compliance have not been demonstrated. The hospital needs to increase compliance rates.

**Table 1: National hand hygiene audit results**

<b>Hand hygiene audit period</b>	<b>Hand hygiene compliance result</b>
March/April 2011	75.7%
Oct/Nov 2011	67.1%
May/June 2012	80.0%
Oct/Nov 2012	81.9%
May/June 2013	71.9%
Oct/Nov 2013	85.7%
May/June 2014	82.4%
Oct/Nov 2014	84.3%

Source: Health Protection Surveillance Centre – national hand hygiene audit results.<sup>12</sup>

### **Local hand hygiene audits**

In addition to twice yearly national hand hygiene audits, monthly hand hygiene audits are also carried out locally across the hospital in all patient care areas by the Infection Prevention and Control Team. Detailed feedbacks of results are given to staff in the areas audited. Results of hand hygiene audits carried out between January and April of 2015 indicate that the Renal Dialysis Unit has achieved an average of 87.5% compliance and the Day Hospital has achieved an average of 95% compliance in the same period.

### **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.

The underlying principles of observation during inspections are based on guidelines promoted by the WHO<sup>13</sup> and the HSE.<sup>14</sup> 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<sup>Y</sup> and recognised barriers to good hand hygiene practice.

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<sup>Y</sup> The inspectors observe if all areas of hands are washed or alcohol hand rub applied to cover all areas of hands.

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 33 hand hygiene opportunities in total during the inspection. Hand hygiene opportunities observed comprised of the following;

- Four before touching a patient
- Thirteen before a clean/aseptic procedure
- Five after body fluid exposure risk
- Two after touching a patient contact
- Nine after touching patient surroundings.

Twenty three of the 33 (70%) hand hygiene opportunities were taken. Of the 33 opportunities taken, hand hygiene technique was observed (uninterrupted and procedure unobstructed) by the Authorised Persons for 26 opportunities. Of these, the correct technique was observed in 11 hand hygiene actions.

There was a lack of awareness demonstrated by staff around the difference between the patient and healthcare zones. This was evidenced through observation and discussion with staff at the time of inspection. In addition, a small number of staff were not observed to be using an adequate volume of alcohol based hand rub which completely wets the hands for the recommended exposure time.<sup>14</sup>

It is important to note that the results of the small sample observed are not statistically significant results for hand hygiene compliance and do not represent all groups of staff or the hospital as a whole. In addition results derived should not be used for the purpose of external benchmarking.

**3.4.4 Reminders in the workplace<sup>3</sup>:** *prompting and reminding healthcare workers about the importance of hand hygiene and about the appropriate indications and procedures for performing it.*

- In addition to the dissemination of monthly audit results hand hygiene advisory posters were available, up-to-date, clean and appropriately displayed.

**3.4.5 Institutional safety climate<sup>3</sup>:** *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.*

- 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 relation to hand hygiene training and reaching the national target of 90% hand hygiene compliance in national and local audits.

#### **4. Summary**

This unannounced inspection against the *National Standards for the Prevention and Control of Healthcare Associated Infection* at Midland Regional Hospital Tullamore, and subsequent correspondence revealed composite infection prevention and control related risk. Findings prompted the Authority to request assurances from the Dublin Midlands Hospital Group Management Team in relation to these risks.

Further investigation at Hospital Group level identified deficiencies at the hospital in relation to healthcare associated infection prevention and control. It was reported to the Authority that the hospital has implemented changes to improve infection prevention and control and related governance arrangements, and that the hospital Group is satisfied that effective mechanisms to provide assurance in relation to quality and safety at the hospital exist.

It is imperative that the hospital, and Hospital Group Management Team, maintain vigilance in relation to infection prevention control performance, and ensure ongoing improvements where necessary, in the best interest of patients.

#### **5. Next steps**

The provision of a well maintained, clean and safe healthcare environment is a key component of effective infection prevention and control. It also promotes public confidence and demonstrates the existence of an effective patient safety culture.<sup>14</sup>

Midland Regional Hospital Tullamore must now revise and amend its QIP that prioritises the improvements necessary to fully comply with the Standards. This QIP must be approved by the service providers 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 Midland Regional Hospital Tullamore to formulate resource and execute its QIP to completion. The Dublin Midland Hospital Group likewise have a responsibility to ensure that their assurance mechanisms related to infection prevention and control are effective, and that reciprocal action occurs should ongoing risks persist.

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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<sup>‡</sup> All online references were accessed at the time of preparing this report.

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