



**Health  
Information  
and Quality  
Authority**

An tÚdarás Um Fhaisnéis  
agus Cailíocht Sláinte

# **Report of the announced inspection of medication safety at Temple Street Children's University Hospital, Dublin.**

**Date of announced inspection:  
05 June 2018**



## **About the Health Information and Quality Authority**

The Health Information and Quality Authority (HIQA) is an independent authority established to drive high-quality and safe care for people using our health and social care services in Ireland. HIQA's role is to develop standards, inspect and review health and social care services and support informed decisions on how services are delivered.

HIQA aims to safeguard people and improve the safety and quality of health and social care services across its full range of functions.

HIQA's mandate to date extends across a specified range of public, private and voluntary sector services. Reporting to the Minister for Health and the Minister for Children and Youth Affairs, HIQA has statutory responsibility for:

**Setting Standards for Health and Social Services** — Developing person-centred standards, based on evidence and best international practice, for health and social care services in Ireland.

**Regulation** — Registering and inspecting designated centres.

**Monitoring Children's Services** — Monitoring and inspecting children's social services.

**Monitoring Healthcare Safety and Quality** — Monitoring the safety and quality of health services and investigating as necessary serious concerns about the health and welfare of people who use these services.

**Health Technology Assessment** — Providing advice that enables the best outcome for people who use our health service and the best use of resources by evaluating the clinical effectiveness and cost effectiveness of drugs, equipment, diagnostic techniques and health promotion and protection activities.

**Health Information** — Advising on the efficient and secure collection and sharing of health information, setting standards, evaluating information resources and publishing information about the delivery and performance of Ireland's health and social care services.



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## **1. Introduction**

Medications are the most commonly used intervention in healthcare, and advances in medication usage continue to play a key role in improving patient treatment success. However, where medicines are used, the potential for error, such as in prescribing, administering or monitoring, also exists. While most medication errors do not result in patient harm, medication errors have, in some instances, the potential to result in catastrophic harm or death to patients.

Medication related events were the third most common type of adverse event recorded in the Irish National Adverse Events Study.<sup>1</sup> Medication safety has also been identified internationally as a key focus for improvement in all healthcare settings and it is estimated that on average, at least one medication error per hospital patient occurs each day.<sup>2</sup> The World Health Organisation (WHO) has identified Medication Safety as the theme of the next Global Patient Safety Challenge on Medication Safety.<sup>3</sup> This global initiative, launched in March 2017, safety aims to address the weaknesses in health systems that lead to medication errors and the severe harm that results.

H IQA's medication safety monitoring programme, which commenced in 2016, aims to examine and positively influence the adoption and implementation of evidence-based practice in public acute hospitals around medication safety. HIQA monitors medication safety against the *National Standards for Safer Better Healthcare*<sup>4</sup> to determine if hospitals have effective arrangements in place to protect patients from harm related to medication use.

An expert advisory group was formed to assist with the development of this medication safety monitoring programme. The advisory group membership included patient representation, alongside members with relevant expertise from across the Irish health service. Specific lines of enquiry were developed to facilitate medication safety monitoring. The lines of enquiry which are aligned to HIQA's *National Standards for Safer Better Healthcare* are included in appendix 1 of this report. Further information can be found in a *Guide to the Health Information and Quality Authority's Medication Safety Monitoring Programme in Public Acute Hospitals 2016*<sup>5</sup> which is available on HIQA's website: [www.hiqa.ie](http://www.hiqa.ie).

A national overview report of the of medication safety monitoring programme '*Medication safety monitoring programme in public acute hospitals- an overview of findings*'<sup>6</sup> was published in January 2018 which presented the findings from thirty-four public acute hospitals inspected from November 2016 to October 2017 (the report is available on HIQA's website, [www.hiqa.ie](http://www.hiqa.ie)). In this report HIQA identified areas of good practice in relation to medication safety and areas that require improvement to ensure medication safety systems were effective in protecting patients.

An announced medication safety inspection was carried out at Temple Street Children's University Hospital by Authorised Persons from HIQA; Nora O' Mahony and Emma Cooke. The inspection was carried out between 09:00hrs and 16:30hrs. Interviews were held in the hospital with the following groups of managers and clinical staff:

- Group one: the chairperson of the Drugs and Therapeutics Committee, the chief pharmacist and the risk and legal manager.
- Group two: the director of nursing deputising for the chief executive officer, the clinical director and the assistant director of nursing deputising for the director of nursing.

Inspectors visited the following clinical areas and spoke with staff and reviewed documentation on:

- Top flat Ward
- St. Michael's C Ward.

In addition a survey was conducted among parents in the Outpatient's Department. HIQA would like to acknowledge the cooperation of staff who facilitated and contributed to this announced inspection and the parents of patients who completed the survey.

## **2. Findings at Temple Street Children's University Hospital.**

The following sections of this report present the general findings of this announced inspection which are aligned to the inspection lines of enquiry.

### **2.1 Governance and risk management**

#### **Lines of enquiry:**

- Patient safety is enhanced through an effective medication safety programme underpinned by formalised governance structures and clear accountability arrangements.
- There are arrangements in place to identify report and manage risk related to medication safety throughout the hospital.

Temple Street Children's University Hospital is an acute national paediatric hospital with major specialities including neonatal and paediatric surgery, neurology, neurosurgery, nephrology, orthopaedics, ear nose and throat and plastic surgery. The National Centre for Paediatric Ophthalmology, The Paediatric Craniofacial Centre and The National Airways Management Centre are also based at the hospital.

#### **Drugs and Therapeutics Committee**

Temple Street Children's University Hospital had formalised governance arrangements and organisational structures with clear lines of accountability in place to support the safe use of medications. The Drugs and Therapeutics Committee was responsible for governance and oversight of medication safety within the hospital. The committee reported to the Quality and Safety Executive through formal reporting structures and provided a formal report twice per year. The chairperson of the Drugs and Therapeutics Committee brought any relevant medicine issues to the attention of the Quality and Safety Executive, the clinical director or the chief executive officer as required.

The Drugs and Therapeutics Committee was chaired by a Consultant Microbiologist with membership that included doctors, pharmacists, nurses and other representative staff who were involved in the medication-use process. The multidisciplinary membership reflected the fact that medicines management is the responsibility of a number of clinical professional groupings.<sup>7</sup> Attendance at meetings by identified members was generally good. However, the committee did not have a representative from general practice or a community pharmacist. The hospital identified that the recruitment of a general practitioner was difficult due to their work commitments and were now considering inviting a community pharmacist instead.

The Drugs and Therapeutics Committee has also identified an in-coming chairperson who attended the Drugs and Therapeutics Committee meetings in preparation for handover of the chairperson's role in the coming month.

The committee had recently reviewed and approved its terms of reference which outlined its purpose, objectives, membership, role, meeting and accountability arrangements. The role of the committee included to:

- establish or recommend a formulary
- determine and approve prescribing policies or protocols
- liaise with other hospital committees and departments where issues arose related to medication
- oversee audit of prescription, dispensing and labelling
- determine and approve the hospital's general medication administration policy
- ensure the administration of clinical trials medication
- promote continuous quality assurance activities
- review aggregated medication related adverse incidents and make recommendations to prevent reoccurrence, including review of methods of reporting, classification and investigation of incidents
- provide an education programme for care providers in promotion of medication safety
- effectively communicate the Drugs and Therapeutics Committee's recommendations.

Temple Street Children's University Hospital and Our Lady's Children's Hospital, Crumlin had recently held a joint Drugs and Therapeutics Committee meeting and had extended an invite to the National Children's Hospital Tallaght. The aim of this meeting was to develop joint processes across the children's hospitals in preparation for the new National Children's Hospital. This committee demonstrated a collaborative approach to medication safety between the hospitals.

## **Formulary**

The hospital did not have a defined formulary\* but used the British National Formulary for Children (BNFc). The hospital informed inspectors that plans were underway to develop a joint formulary for the Children's Hospital Group and approval for funding had been received for a pharmacist to progress the joint

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\* Formulary: a managed list of preferred medicines that have been approved by the hospital's Drugs and Therapeutics Committee for use at the hospital. Use of a formulary ensures governance oversight of the introduction and ongoing use of medicines in practice at the hospital, and in doing so ensures an appropriate level of management control over medicines use, in the interest of both patient safety and financial management.

formulary development. In the interim, the hospital had recently developed a draft list of medicines in use within the hospital, by BNFc category.

The hospital had a new medication request form on which consultants requested new medicines for use within the hospital. Completed request forms were discussed at the Drugs and Therapeutics Committee and reviewed based on the following criteria:

- indications for use
- proposed prescribers and restrictions (if any)
- recommended paediatric dosing guidelines and usual length of treatment
- number of patients per year requiring the new medicine
- whether the medicine replaced another medicine currently used at the hospital
- whether the medicine necessitated laboratory monitoring
- what medicines were currently used at the hospital for this indication
- advantages and disadvantages of the new therapy compared to the current therapy
- evidence of efficacy citing relevant literature reference
- suggested evaluation timeframe.

The hospital should continue to progress its plans for the development of a defined formulary process within the Children's Hospital Group, to outline medicines that are approved for use in the hospital and provide information and standard guidance on the use of these medicines.<sup>6</sup>

## **Clinical Trials**

All medicines must undergo clinical trials before they are granted a licence in Ireland, or in Europe.<sup>8</sup> Clinical trials were currently not discussed at the Drugs and Therapeutics Committee meetings although included in the committee's terms of reference. Inspectors were informed that the number of clinical trials involving medicines was currently limited within the hospital, but expected to rise in the future. The hospital acknowledged that the committee would need to consider their involvement in the future and planned to employ a dedicated clinical trials pharmacist to support this process. It is recommended that Drugs and Therapeutics Committees should have an involvement in monitoring and evaluating the risks of clinical trials.

The hospital had developed a Medication Safety Quality Improvement plan for 2017/2018 under the follow themes; education and training, reporting, audit, interventions, high risk medicines, governance, quality assurance, and access to information. Under each theme the hospital highlighted what was currently in place, the opportunities for improvement and the actions which had been completed to date. For example, under the theme of education the hospital had identified the re-

establishing of education sessions for non consultant hospital doctors as an opportunity for improvement. In response the hospital had developed a prescribing skills workshop for Temple Street Children's University Hospital. This workshop incorporated information on medication safety, correct prescribing and the use of the British National Formulary for Children.

The hospital's medication safety quality plan could be further enhanced through the development of a formalised medication safety strategy to clearly articulate the long-term strategic and short-term operational goals. This could be developed as part of the joint Drugs and Therapeutics Committee in advance of the hospital's amalgamation as part of the National Children's Hospital project. In the absence of national guidance in this area, international guidelines which outline best practice in relation to medication safety strategic planning and quality improvement should be used.<sup>9,10</sup>

## **Risk management**

The prevalence of medication errors and corresponding harm is higher in children than in adults due to greater complexity with respect to prescribing and administration.<sup>11</sup> Children are also at increased risk of harm from medication errors because of their relative size, immature renal and hepatic function, and an inability to communicate signs of the adverse effects of medications.<sup>11,12</sup>

Incident reporting in the hospital had increased significantly from 172 medication safety incidents reports in 2016 to 800 medication safety incidents reported in 2017. The hospital accredited this increased reporting to the development of a manual paper based reporting form, developed in response to staff feedback and the hospital's recognition of low reporting rates. This manual paper version was based on the electronic version in place in the hospital, and either method could be used to report medication safety incidents.

Increased incident reporting was also encouraged through a 'good catch<sup>†</sup> project' where staff were encouraged and supported to report near-miss incidents. Studies have found a positive association between increased incident reporting rates and measures of safety culture, where an increase in incident reporting was indicative of a positive safety culture within the hospital.<sup>13</sup>

All medication safety incidents reported on the manual paper version of the incident form were subsequently inputted into the hospital's electronic incident reporting

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<sup>†</sup> A good catch is recognition by staff of a condition or situation that had the potential to cause a medication safety incident but did not cause one due to corrective action and/or timely intervention by the staff member.

system. The hospital informed inspectors that only incidents which reached the patient were inputted onto the National Incident Management System<sup>†</sup>.

All medication incidents were graded using the National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) Medication Error Index to categorise incidents in terms of patient harm (appendix 2). The index considers factors such as whether the error reached the patient and, if the patient was harmed, to what degree.

The majority of incident reports were submitted by nurses. The hospital had identified increasing incident reporting among non-consultant hospital doctors as an opportunity for improvement in the Medication Safety Quality Improvement plan. To support this, weekly medication incident reports were circulated to the assigned Lead Non Consultant Hospital Doctor for discussion at educational meetings.

Medication incidents and near misses were tracked and trended to assess progress, identify emergent medication safety concerns and prioritise medication safety activities. The hospital had identified safety concerns related to incidents reported and analysed, and had put measures in place to address these risks. For example, following an insulin pump incident the related hospital policy had been updated to ensure that insulin pump settings were prescribed and checked.

Medication incident reports were emailed weekly to managers, discussed at the Drugs and Therapeutics Committee and reported monthly to the Quality and Safety Executive. Medication safety issues or incidents could also be raised by staff at the twice daily hospital huddle<sup>§</sup>, with pharmacy staff invited to attend the afternoon huddle when relevant.

At the Board of Directors meetings medication safety incidents and trends were discussed as a part of the Board of Directors Quality Dashboard<sup>\*\*</sup> in terms of:

- prescribing incidents which reached the patient
- 'good catches' or near misses which did not reach the patient
- the grade of incident using the NCCMERP (appendix 2)

Medication safety incidents were assessed and recommendations for improvement outlined by the Board. Many of these recommendations were implemented and

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<sup>†</sup> The State Claims Agency (SCA) National Incident Management System (NIMS) is a risk management system that enables hospitals to report incidents in accordance with their statutory reporting obligation to the SCA (Section 11 of the National Treasury Management Agency (Amendment) Act, 2000).

<sup>§</sup> A twice daily huddle attend by senior management and staff from all wards areas to review and discuss issues and raise any patient safety concerns.

<sup>\*\*</sup> The Board of Directors received and monitored a 'Board of Director's Quality Dashboard' comprising of quality of care indicators.

highlighted to inspectors during the inspection. For example; the development of a manual incident reporting form, the inclusion of medication safety as a standing agenda item on the Quality and Safety Executive, feedback on medication safety incidents to non consultant hospital doctors at grand rounds<sup>††</sup> and the circulation of medication safety newsletters<sup>‡‡</sup> to all medical and nursing staff.

Inspectors found that there was a significant increase in medication safety incident reporting in recent years and this reflected the emphasis placed on patient safety by senior managers within the hospital, and the willingness of front-line staff to provide information to reduce the risk of reoccurring harm to patients. The hospital should sustain this effort and work to broaden the culture of reporting medication incidents to include all healthcare staff so that the safety surveillance is further enhanced across the organisation.

## **2.2 Audit and evaluation**

### **Line of enquiry:**

- The effectiveness of medication management systems are systematically monitored and evaluated to ensure they are effective.

Audit of medication was included on the Medication Safety Quality Improvement Plan. Inspectors were told that, in general, audit topics were chosen by clinical teams, assigned to a consultant lead and reviewed by the hospital's Audit Group. Audits were usually centrally coordinated by the audit facilitator but at the time of the inspection there was a gap in this service and the hospital was awaiting the commencement of a newly appointed audit facilitator.

Most of the medication related audits completed focused on the storage of medicines and the use of antimicrobial medicines<sup>§§</sup> including; start smart then focus, restricted antimicrobial storage of vancomycin and an initiative to reduce piperacillin-tazobactam consumption. Inspectors were informed that hard copies of some audit reports were circulated to ward managers and presented at the Quality and Safety Executive meeting.

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<sup>††</sup> Grand rounds are formal meetings where physicians and other clinical support and administrative staff discuss the clinical case of one or more patients. Grand rounds originated as part of medical training.

<sup>‡‡</sup> A medication safety newsletter titled *Medication Matters* was circulated quarterly, to promote medication safety, highlight learning points and encourage incident reporting for the safety of patients.

<sup>§§</sup> Antimicrobial is a general term that refers to a group of drugs that includes antibiotics, antifungals, antiprotozoals, and antivirals

In addition, the hospital held twice yearly audit days with oral presentations and posters displayed. An example of a medication audit submitted for the audit day was shown to inspectors.

### **Nursing quality care metrics**

Nursing quality care metrics<sup>\*\*\*14</sup> were monitored monthly across the hospital to review practice around prescribing, storage and administration of medicines. Poor compliance with quality care metrics in some areas had influenced the development of some quality improvement projects such as:

- revision of the medication prescription and administration record
- swipe access to the medication trolley in the Intensive Care Unit and the Emergency Department
- development of a prescribing skills workshop for non consultant hospital doctors.

An increase in compliance was observed following implementation of quality improvements. For example, compliance with medication storage and custody increased from 40% to 100% following the implementation of swipe access to the medicines trolley in the Intensive Care Unit. However, some areas for improvement were still identified by the hospital such as prescribing metrics, and the hospital planned a multidisciplinary team approach to target these specific areas.

### **Key performance indicators**

Hospital management reported that key performance indicators were used to evaluate medication safety at the hospital and these included data on medication incident reports and nursing metrics.

Clinical audit represents a key component of all effective clinical governance programmes.<sup>15</sup> Medication safety audits should be planned and based on local priorities to provide assurance to the senior hospital management team about medication safety at the hospital. Dissemination of audit and key performance results is essential so that the clinical workforce is informed of areas that need improvement and also to motivate them to participate in improvement activities and improve practice.<sup>16, 17</sup>

Overall the hospital demonstrated evidence of some clinical audit and monitoring in relation to medication. The local clinical audit days were a positive development to promote and communicate the results of clinical audit. However, inspectors found that audit and monitoring of medication safety could be further developed and improved as only a limited number of audits were highlighted for completion in

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<sup>\*\*\*</sup> Metrics are parameters or measures of quantitative assessment used for measurement and comparison or to track performance.

2017/2018. This could provide assurance that compliance with best practice in relation to improving medication safety is sustained over time.

## **2.3 Medication safety support structures and initiatives**

### **Line of enquiry:**

- Hospitals develop effective processes to promote medication safety that are implemented and supported by clear and up-to-date policies, procedures and or protocols.

### **Clinical pharmacy services**

There are currently no agreed national standards outlining requirements for the provision of clinical pharmacy<sup>†††</sup> services in hospitals. International studies support the role of clinical pharmacists in hospital wards in preventing adverse drug events.<sup>18,19,20,21,22,23</sup> A clinical pharmacy service was available for patients in the Intensive Care Unit, in the respiratory and renal services and to patients on antimicrobials. The limited clinical pharmacy service was a risk to patient safety identified by the hospital and placed on the hospital's risk register.

Inspectors were informed that the pharmacy staff had increased from three to five in the past two years. This increase was a part of the hospital's 'Vision for the Development of Clinical Pharmacy at Temple Street Children's University Hospital'.

Given the greater complexity with prescribing and administration of medication for children, and the higher potential for harm when an error does occur, the lack of clinical pharmacists for all inpatient areas was of concern to HIQA. Notwithstanding the progress made to date in implementing a clinical pharmacy service, the hospital needs to urgently prioritise the availability of a clinical pharmacy service for all patients.

Inspectors were informed that due to the complexity of services provided by the hospital there were clinical nurse specialists available to patients in almost all specialities within the hospital who provided patient education including education regarding medicines.

### **Medication reconciliation**

Medication reconciliation is a systematic process conducted by an appropriately trained individual to obtain an accurate and complete list of all medicines taken prior to admission, discharge and other transitions of care.<sup>15,24,25,26</sup>

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<sup>†††</sup> Clinical pharmacy describes the activity of pharmacy teams in ward and clinic settings

Inspectors were informed that medication reconciliation was undertaken in the areas with a clinical pharmacist, and a medication reconciling form had been recently developed to support this process. Some pharmacy staff within the hospital were trained in medication reconciliation, and these staff had provided a 'train the trainer' programme with supervision for other pharmacy staff. However, inspectors were informed this was still in the early stages of development and the effectiveness of this process had not been audited to date. Medication reconciliation should be further developed and formalised and introduced throughout the hospital.

### **High-risk medicines**

High-risk medicines are those that have a high risk of causing injury or harm if they are misused or used in error. The Pharmacy Department currently had a list of high-risk medications and were considering collaborating with Our Lady's Children's Hospital, Crumlin in developing a combined high-risk medications list. The hospital did have some risk-reduction strategies in place to mitigate against patient risk in the use of these high-risk medicines. For example; standardisation of heparin concentration, restricted use of potassium ampoules with segregated storage in the schedule control drug cupboard and gentamicin monitoring guidelines.

The Pharmacy Department endeavoured to avoid purchasing medicines with similar packaging. However due to shortages in the availability of some antimicrobials the hospital had to purchase some medicines in similar looking packages also referred to as sound-alike-look-alike drugs (SALADS).<sup>27</sup> As a proactive measure, the Pharmacy Department placed yellow SALAD stickers on these medicines boxes, and brought it to staff attention through emails, the Medication Matters newsletter <sup>†††</sup>and during the daily huddle. The information was also communicated to senior managers through the Quality and Safety Executive meeting.

### **Standard concentrated infusions**

The hospital had enhanced medication safety through the introduction of smart-pump technology<sup>\$\$\$</sup> and the introduction of a drug library in collaboration with Our Lady's Children's Hospital Crumlin, containing an agreed list of standardised concentration infusions.<sup>28</sup>

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<sup>†††</sup> Quarterly medication safety newsletter called *Medication Matters* developed by the hospital and circulated to staff.

<sup>\$\$\$</sup> Smart-pumps are computerised infusion devices with multiple safety features that include customised drug libraries, dose calculations based on programmed patient weights and the setting of dose limits.

Inspectors were informed about the use of standard concentration infusions across the Irish Paediatric Acute Transport Service \*\*\* and in the paediatric intensive care unit at Temple Street Children's University Hospital. Standardisation was achieved for paediatric patients requiring intensive care management with continuous intravenous infusions. The safety benefits of this cross site standardisation of the smart pump infusion drug library containing a list of standardised drug concentrations facilitated a reduction in the risk of medication error when critically-ill children were transferred from one facility to another.

### **The Red Apron Initiative**

Interruptions during medication administration rounds are thought to be a prominent causative factor of medication errors.<sup>29</sup> To minimise or eliminate nurse distraction during medication administration process, red aprons were worn by nursing staff while preparing or administering medications. This intervention was designed to draw attention to the fact that the medication round was in progress, and that nurses should not be interrupted while administering medications. The use of red aprons was initially piloted on some wards and then implemented on other wards.

Other medication safety initiatives highlighted by the hospital on the day of the inspection included:

- development of a joint medication prescribing and administration record between Temple Street Children's University Hospital and Our Lady's Children's Hospital, Crumlin
- development of a quick reference analgesic card
- prevention of tenfold errors through education and vigilance
- displacement values of antimicrobials guidance.

### **2.4 Person-centred care**

#### **Line of enquiry:**

- Patients and/ or carers are informed about the benefits and associated risks of prescribed medications in a way that is accessible and understandable.

Parents of patients should be well informed about any medications their children are prescribed and any possible side-effects. This is particularly relevant for those patients who are taking multiple medications.

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\*\*\* A 24 hour national service that facilitates the transfer of critically ill infants and children (aged from 6 weeks corrected gestational age to the eve of their 16th birthday) from the referring hospital to the intensive care unit in Temple Street Children's University Hospital or Our Lady's Children's Hospital Crumlin.

Inspectors were informed that parent and child education was provided by clinical nurse specialists available to most specialities within the hospital. Doctors also provided education on prescribing new medicines and nurses provided medication information for children on discharge. Inspectors were informed that nurses provided education for children not supported by a clinical nurse specialist service, and to all children discharged at weekends.

Inspectors were also shown a copy of the discharge plan within nursing documentation which incorporated competency assessment for parents, to ensure they had the necessary knowledge and skill for medication administration to care for their child post discharge. Information leaflets for parents/carers were available and viewed by inspectors, for example, information for parents/carers about prednisolone.

As part of this inspection, HIQA asked the hospital to administer an anonymised questionnaire in relation to prescribed medications to a small sample of parents attending the Outpatients Department with their children. The questionnaire was completed by 17 parents whose child had been an inpatient in the hospital within the past year and who were prescribed regular medications. Of the 17 people surveyed:

- 16 said that a staff member had explained the purpose of new medication in a way that they could understand
- 14 said that a staff member told them about possible medication side effects to look out for following their child's discharge home
- All 17 said they received instructions on how to administer the medications to their child at home.

It is acknowledged that this was a small sample of parents and therefore may not be representative of all recently discharged children taking prescribed medication. Patient education is an integral component of the safe, effective and cost-effective use of medications and these positive results reflect well on the systems in place within the hospital for providing education to parents and children.

## **2.5 Policies procedures and guidelines and access to information**

### **Lines of enquiry:**

- Hospitals develop effective processes for medication management that are implemented and supported by clear and up to date policies, procedures and/or protocols.
- Essential information supporting the safe use of medicines is readily available in a user friendly format and is adhered to when prescribing, dispensing and administering medications.

The hospital had recently updated its multidisciplinary Medication Management Policy to clearly identify the roles and responsibilities of the healthcare professional involved in all aspects of the medication management process.<sup>††††</sup>

All medication-related policies, procedures and guidelines were approved by the Drugs and Therapeutics Committee. Inspectors observed that up-to-date versions of medication policies, procedures, protocols and guidelines were available to staff in clinical areas on computer desktops via the hospital's document control management system.

The hospital approved the British National Formulary for Children (BNFc) to guide prescribers in the hospital. Inspectors were informed and observed that additional locally developed information resources were available to guide staff such as clinical care pathways and additional antimicrobial dosing information, not present in the BNFc.

Commercially available paediatric injectable medicines monograph guides were recently approved for use within the hospital. These were available to staff on ward computers and printable to guide staff in the prescribing and administration of intravenous medicines. These intravenous drug monograph guides were not locally adapted or available to staff at the point of medicines preparation in all clinical areas visited by inspectors. Inspectors were informed and observed that additional locally developed information resources were available to guide staff such as, the procedure for prescription and administration of intravenous potassium to patients with inherited metabolic disorder at risk of hypokalaemia.

The hospital also had an approved antimicrobials guide introduced in collaboration with Our Lady's Children's Hospital Crumlin. This was available to staff on hospital

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<sup>††††</sup> Includes: medication ordering, storage, prescribing, administration, appropriate disposal and documentation.

computers, as a smart phone application and with an associated antimicrobial quick guide card.

Healthcare staff require access to complete and accurate patient information, relevant to the safe use of medications, at the point of clinical decision making, to help ensure patient safety and inspectors found that clinical staff had access to electronic patient's laboratory results in clinical areas across the hospital.

Although the information resources, such as the BNFC and commercially available intravenous guides, provide reputable sources of information it is not specific to the services provided by the hospital.

The availability of locally developed or adapted information resources for prescribing and administration of medicines to assist staff in the safe administration of intravenous medicines should be considered by the hospital, or the use of technology to link locally developed information sources, to seamlessly guide staff to access the appropriate information. This could be achieved through sharing of resources and collaboration with the other hospitals within the Children's Hospitals Group.

## **2.6 Training and education**

### **Line of enquiry:**

- Safe prescribing and drug administration practices are supported by mandatory and practical training on medication management for relevant staff.

Staff education can effectively augment error prevention when combined with other strategies that strengthen the medication-use system.<sup>30</sup>

The hospital informed inspectors that medication safety training was mandatory for all new clinical staff. All registered nursing staff were required to successfully complete a medicine calculation test within the first week of employment. Nurses then completed a medication safety awareness training with an associated competency booklet. Following completion of the medication safety awareness training programme nurses were then eligible to complete the mandatory intravenous therapy management day. Nurses who had a break in service for over one year were required to complete the medication safety awareness training again.

The hospital reported that 95% of doctors attended the medication safety session on induction, and additional doctors had completed specific paediatric intensive care unit training provided by pharmacists at induction. Some non consultant hospital

doctors had completed the recently developed prescribing skill programme<sup>††††</sup> and the hospital informed inspectors that they planned to make this programme mandatory for all non-consultant hospital doctors.

There was a clinical facilitator on each ward who supported nurse education and competency assessment at ward level. For example, inspectors were informed that the clinical skills facilitator provided ward based education sessions for staff on the recently introduced commercially available intravenous guide.

Medication safety information was disseminated to staff through daily ward safety pauses<sup>§§§§</sup>, hospital huddles, the quarterly medication safety newsletter called *Medication Matters* and memorandums emailed to all staff. Relevant medication safety information was displayed on the wards notice board to raise awareness among staff. All these information sources could also be easily accessed by staff on the pharmacy folder located on the desk top of all computers.

In addition all hospital computer lock screens<sup>\*\*\*\*\*</sup> displayed centrally controlled topical news items on rotation for staff to view. For example, the upcoming audit presentation day was advertised through this medium.

The hospital should look to have a formalised ongoing education programme to ensure healthcare professionals maintain the necessary competencies to deliver high-quality medication safety training. This should include a structured, targeted programme of education for medication safety aligned with the hospital's medication safety strategy.<sup>6</sup>

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<sup>††††</sup> The hospital had developed a prescribing skills workshop for Temple Street University hospital. This workshop incorporated information on medication safety, correct prescribing and the use of the British National Formulary for Children.

<sup>§§§§</sup> Safety Pause: Staff discussed patient safety issues at nurse handover using the 4 P's; patient professional processes and patterns.

<sup>\*\*\*\*\*</sup> The lock screen is the screen visible when logging into a computer, after rebooting or when waking up computer from sleep mode.

### **3. Conclusion**

Medications represent the primary measure for treatment intervention in hospitalised patients. Error associated with medication usage constitutes one of the major causes of patient harm in hospital. Medication-related events were the third most common type of adverse event recorded in the recently published Irish National Adverse Events Study. Medication safety should therefore be a priority area for all acute hospitals as they seek to ensure a high quality and safe service for patients.

Temple Street Children's University Hospital had governance arrangements in place with systems and processes to support medication safety in the hospital. It was evident that this was driven by effective local leadership and executive management support. The hospital was collaborating with other hospitals within the Children's Hospital Group to streamline systems to improve medication safety.

Given the greater complexity with prescribing and administration of medication for children and the higher potential for harm when an error does occur, the lack of clinical pharmacy service for all patients was a risk to patient safety identified by the hospital and of concern to HIQA. Notwithstanding the progress made to date in implementing a clinical pharmacy service the hospital needs to urgently prioritise the availability of a clinical pharmacy service for all patients. In conjunction with this medication reconciliation should be further developed, formalised and introduced throughout the hospital.

The significant increase in medication safety incident reporting reflects the emphasis placed on patient safety by senior managers within the hospital, and the willingness of front-line staff to provide information to reduce the risk of reoccurring harm to patients. However, this culture of reporting medication incidents should be broadened out to include all healthcare staff so that safety surveillance is improved, learning is shared, and safety culture is enhanced across the organisation.

Hospitals should have a defined formulary process to outline medicines that are approved for use in the hospital, and provide information and standard guidance on the use of these medicines. The hospital should continue to progress its plan for a joint formulary within the Children's Hospital Group.

The positive results in the patient survey undertaken reflected well on the systems in place within the hospital for providing education to parents and children. Although this was a small sample size that may not be representative of all recently discharged children taking prescribed medication.

Audit represents a key component of all effective clinical governance programmes and audit of medication safety should be planned and based on local priorities.<sup>31</sup> This is an area that could be further developed to provide assurance that systems in place to support medication safety at the hospital are safe and effective.

Following this inspection the hospital should continue the focus placed on medication safety through the continuation of progress made to date. It is recommended that this report should be shared with senior managers, clinicians and all relevant staff at Temple Street Children's University Hospital to highlight both what has been achieved by the hospital to date in implementing medication safety activities, and to foster further collective progression from this time point.

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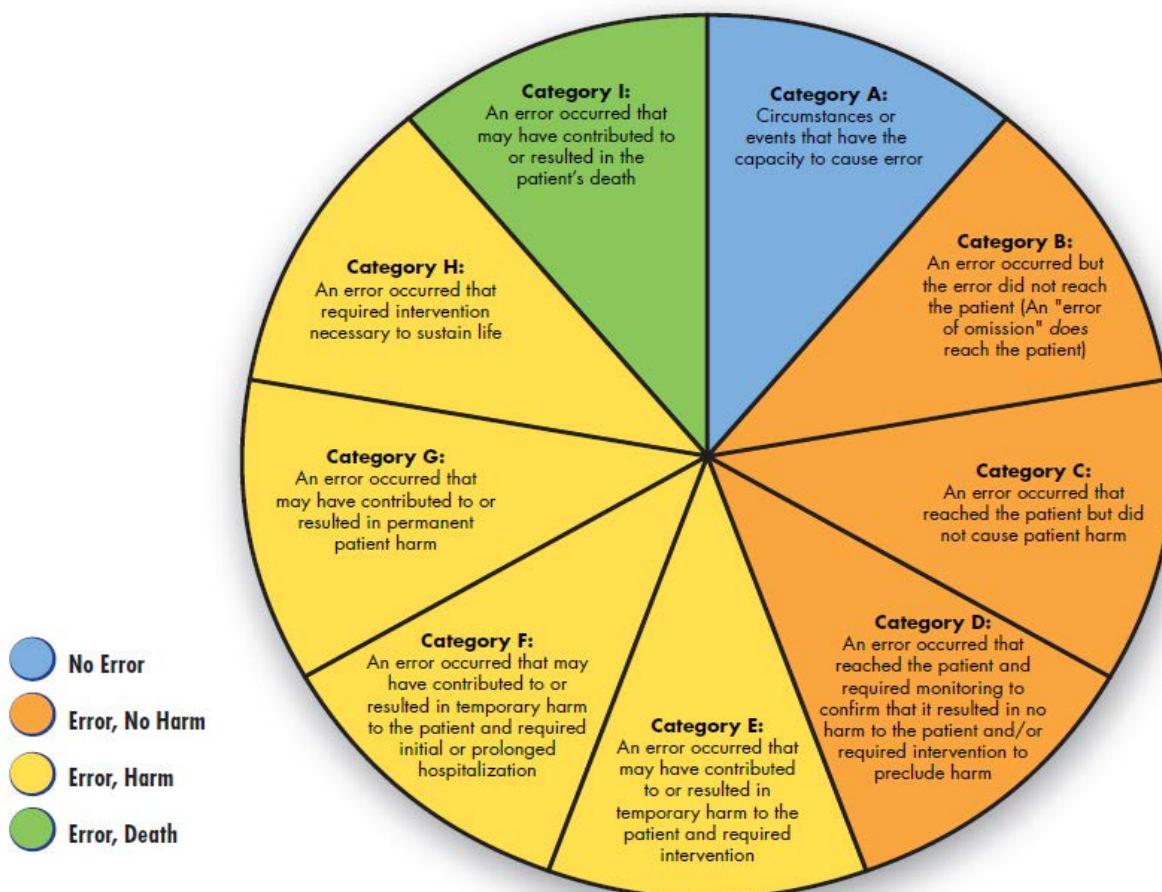
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## 5. Appendices

### Appendix 1: Medication safety monitoring programme Phase One: Lines of Enquiry and associated National Standard for Safer Better Healthcare

<b>Area to be explored</b>	<b>Line of enquiry<sup>1</sup></b>	<b>National Standards for Safer Better Healthcare</b>
Clear lines of accountability and responsibility for medication safety	Patient safety is enhanced through an effective medication safety programme underpinned by formalised governance structures and clear accountability arrangements.	3.1, 5.1, 5.2, 5.4, 5.5, 5.6, 5.8, 5.9, 5.10, 7.1
Patient involvement in service delivery	Patients and or carers are informed about the benefits and associated risks of prescribed medicines in a way that is accessible and understandable.	1.4, 1.5, 1.7, 3.1, 4.1
Policies procedures and guidelines	Hospitals develop effective processes to promote medication safety that are implemented and supported by clear and up-to-date policies, procedures and or protocols.	2.1, 3.1, 3.2, 3.3, 3.5, 3.6, 3.7, 5.8, 5.11, 8.1
Risk management	There are arrangements in place to identify report and manage risk related to medication safety throughout the hospital.	3.1, 3.2, 3.3, 3.5, 3.6, 3.7, 5.8, 5.10, 5.11, 8.1
Audit and evaluation	The effectiveness of medication management systems are systematically monitored and evaluated to ensure they are effective.	2.8, 3.1, 5.8, 8.1
Education and training	Safe prescribing and drug administration practices are supported by mandatory and practical training on medication management for relevant staff.	6.2, 6.3
Access to information	Essential information of the safe use of medications is readily available in a user-friendly format and is adhered to when prescribing, dispensing and administering medications.	2.5, 8.1

## **Appendix 2: National Coordinating Council for Medication Error Reporting and Prevention. Index for Categorising Medication Errors.**



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