Report of the announced inspection of medication safety at Connolly Hospital.

Date of announced inspection: 03 April 2019
About the Health Information and Quality Authority (HIQA)

The Health Information and Quality Authority (HIQA) is an independent statutory authority established to promote safety and quality in the provision of health and social care services for the benefit of the health and welfare of the public.

HIQA’s mandate to date extends across a wide range of public, private and voluntary sector services. Reporting to the Minister for Health and engaging with the Minister for Children and Youth Affairs, HIQA has responsibility for the following:

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

- **Regulating social care services** — The Office of the Chief Inspector within HIQA is responsible for registering and inspecting residential services for older people and people with a disability, and children’s special care units.

- **Regulating health services** — Regulating medical exposure to ionising radiation.

- **Monitoring services** — Monitoring the safety and quality of health services and children’s social services, and investigating as necessary serious concerns about the health and welfare of people who use these services.

- **Health technology assessment** — Evaluating the clinical and cost-effectiveness of health programmes, policies, medicines, medical equipment, diagnostic and surgical techniques, health promotion and protection activities, and providing advice to enable the best use of resources and the best outcomes for people who use our health service.

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

- **National Care Experience Programme** — Carrying out national service-user experience surveys across a range of health services, in conjunction with the Department of Health and the HSE.
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1. Introduction

HIQA’s medication safety monitoring programme began in 2016 and monitors public, acute hospitals in Ireland against the National Standards for Safer, Better Healthcare to ensure patient safety in relation to the use of medications.\(^1\) The programme aims to examine and positively influence the adoption and implementation of evidence-based practice in relation to medication safety in acute healthcare services in Ireland.

Medications are the most commonly used intervention in healthcare. They play an essential role in the treatment of illness, managing chronic conditions and maintaining health and wellbeing. As modern medicine continues to advance, increasing medication treatment options are available for patients with proven benefit for treating illness and preventing disease. This advancement has brought with it an increase in the risks, errors and adverse events associated with medication use.\(^2\)

Medication safety has been identified internationally as a key area for improvement in all healthcare settings. In March 2017, the World Health Organization (WHO) identified medication safety as the theme of the third Global Patient Safety Challenge.\(^3\) The WHO aims to reduce avoidable harm from medications by 50% over 5 years globally. To achieve this aim the WHO have identified three priority areas which are to:

- improve medication safety at transitions of care
- reduce the risk in high-risk situations
- reduce the level of inappropriate polypharmacy.*

Medication safety has also been identified by a number of organisations in Ireland as a key focus for improvement.\(^4,5,6,7,8,9\) Medication safety programmes have been introduced in many hospitals to try to minimise the likelihood of harm associated with the use of medications, and in doing so maximise the benefits for patients. These programmes aim to drive best practice in medication safety by working to encourage a culture of patient safety at a leadership level and through the introduction of systems that prevent and or mitigate the impact of medication-related risk.\(^10\)

**HIQA’s medication safety monitoring programme 2019**

HIQA published a national overview report of the medication safety monitoring programme ‘Medication safety monitoring programme in public acute hospitals - an overview of findings’\(^11\) in January 2018 which presented the findings from thirty-

* Polypharmacy: the use of many medications, commonly five or more.
four public acute hospital inspections during phase one of the programme. This report identified areas of good practice in relation to medication safety and areas that required improvement, to ensure medication safety systems were effective in protecting patients. A number of recommendations were made focusing on improving medication safety at a local and national level. The recommendations are detailed in the report which is available on the HIQA website (www.hiqa.ie).

The final phase of HIQA’s medication safety monitoring programme has been updated and developed and the current approach is outlined in eight lines of enquiry. The lines of enquiry are based on international best practice and research, and are aligned to the National Standards (see Appendix 1). The monitoring programme will continue to assess the governance arrangements and systems in place to support medication safety. In addition, there will be an added focus on high-risk medications and high-risk situations during this monitoring programme.

High-risk medications are those that have a higher risk of causing significant injury or harm if they are misused or used in error. High-risk medications may vary between hospitals and healthcare settings, depending on the type of medication used and patients treated. Errors with these medications are not necessarily more common than with other medications, but the consequences can be more devastating.

High-risk situation is a term used by the World Health Organization to describe situations where there is an increased risk of error with medication use. These situations could include high risks associated with the people involved within the medication management process (such as patients or staff), the environment (such as higher risk units within a hospital or community) or the medication.

International literature recommends that hospitals identify high-risk medications and high-risk situations specific to their services and employ risk-reduction strategies to reduce the risks associated with these medications (Appendix 2).

System-based risk-reduction strategies have a higher likelihood of success because they do not rely on individual attention and vigilance, and a small number of higher-level strategies will be more likely to improve patient safety than a larger number of less effective strategies. Therefore, risks associated with the procurement, dispensing, storage, prescribing, and administration of high-risk medications need to be considered at each step of the medication management pathway.

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1 Lines of enquiry are the key questions or prompts that inspectors use to help inform their inspection, assessment or investigation.

2 Risk reduction strategies: a term used to describe different ways of dealing with risks. Strategies include risk avoidance, transfer, elimination, sharing and reducing to an acceptable level.
Information about this inspection

An announced medication safety inspection was carried out at Connolly Hospital by Authorised Persons from HIQA; Nora O’ Mahony, Kay Sugrue and Maeve McGarry. The inspection was carried out on 03 April 2019 between 09:00hrs and 16:03hrs.

Inspectors spoke with staff, reviewed documentation and observed systems in place for medication safety during visits to the following clinical areas:

- Rowan ward
- Maple ward
- Coronary care unit.

Two group interviews were held in the hospital with the following staff:

- Group one: the acting chairperson of the Drugs and Therapeutics Committee, the chief pharmacist, the medication safety facilitator and the quality and safety advisor.
- Group two: the chief executive officer, the clinical director and the director of nursing.

HIQA would like to acknowledge the cooperation of staff that facilitated and contributed to this announced inspection.

Information about the hospital

Connolly Hospital is a model 3\(^\text{5}\) public acute hospital in the Royal College of Surgeons of Ireland Group. Services provided by the hospital include a 24-hour emergency department, acute medical and surgical services, acute psychiatric services, long-stay residential care, day care, out-patient care plus diagnostic and therapeutic and support services.

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\(^5\) Model 1, 2, 3 and 4 hospitals: In 2010, the National Acute Medicine Programme-HSE described four generic acute hospital models. A model 3 hospital admits undifferentiated acute medical patients; provide 24 hour/7 day week acute surgery, acute medicines and critical care.
2. Findings at Connolly Hospital

Section 2 of this report presents the general findings of this announced inspection.

The inspection findings are outlined under each of the eight lines of enquiry and opportunities for improvement are highlighted at the end of each section.

2.1 Leadership, governance and management

Connolly Hospital had strengthened the governance arrangements in place for medication safety since the previous medication safety inspection, with clear lines of accountability and reporting structures now in place. The Drugs and Therapeutics Committee was responsible for oversight of medication safety within the hospital and reported regularly to the Quality and Safety Executive Committee.

The Drugs and Therapeutics Committee met as per its terms of reference with good attendance from members. The hospital had not been successful in recruiting a consultant surgeon to attend the meetings, but inspectors were informed that the perioperative directorate was represented by a consultant anaesthetist.

The hospital had developed a formalised medication safety programme and had set up a Medication Safety Committee since the previous HIQA inspection in 2016. The Medication Safety Committee was a subcommittee of the Drugs and Therapeutics Committee and provided update reports at each Drugs and Therapeutics Committee meeting.

The hospital’s medication safety programme was outlined in an Annual Work Plan for 2018 and 2019, which was implemented by the Medication Safety Committee with oversight from the Drugs and Therapeutics Committee. The overall medication safety programme was strengthened by the appointment of a medication safety facilitator in June 2018.

Progress achieved against the 2018 Annual Work Plan was presented in the hospital’s Medication Safety Programme Annual Report which outlined the medication safety activities under five main themes:

- monitoring and measurement of medication incidents
- communication, education and training
- development, updating and dissemination of medication safety policies, procedures, protocols and guidelines
- audit
- quality improvement initiatives.
Inspectors also observed evidence of implementation of the hospital’s quality improvement plan developed following the previous HIQA medication safety inspection, which outlined areas identified for improvement and the progress to date.

The hospital had not developed a strategic plan for medication safety, but outlined to inspectors that the hospital first planned to gather baseline information and increase medication safety intelligence to identify priorities to inform a medication safety strategy.

**Opportunities for improvement**

- The hospital should look to develop a medication safety strategy to clearly articulate the medium and long-term operational goals for medication safety.

### 2.2 Risk management

The hospital had a system in place for the reporting of medication incidents using both the National Incident Reporting Form and a local electronic system in the pharmacy department. All reported medication incidents were reviewed and analysed by the medication safety facilitator, and a subset were forwarded to the Quality and Safety Department for reporting onto the National Incident Management System.

The number of medication incidents reported had increased each year; with 435 medication incidents reported in 2018 (see Figure 1). The higher reporting rate was as a result of increased reporting from pharmacists, who reported 84% of medication incidents with 15% reported by nurses.

Although there was an overall increase in medication incident reporting, the level of reporting could still be improved. Also, considering the high percentage of reporting from clinical pharmacists there was potential for underreporting of medication incidents in the clinical areas not assigned a clinical pharmacist.

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**The State Claims Agencies (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).**
The hospital acknowledged the underreporting of medication incidents and was taking proactive steps to improve the reporting culture by providing staff with feedback on medication incidents at education sessions, meetings and through quarterly medication incident analysis reports and medication safety bulletins.

**Analysis of incidents**

Since the last inspection the hospital had established a system for analysing and trending of medication incidents. This was supported by the medication safety facilitator using the National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) Medication Error Index to categorise medication incidents according to the severity of the outcome (Appendix 3).

Quarterly medication incident analysis reports were produced which outlined; the number of incidents, the discipline reporting, the NCCMERP category and the stage of the medication process involved. The reports were presented and discussed at the Drugs and Therapeutics Committee and included in the Monthly Hospital Performance Quality and Safety Metrics reported to the Royal College of Surgeons in Ireland Group. These reports were also circulated to consultants, non-consultant hospital doctors, nurses and pharmacists to support learning.

Incidents were trended each quarter by NCCMERP category and number. This analysis identified very positive trends in reporting, where the number of near miss incidents reported had increased (category A and B), while the number of

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†† Medication management process: selection, procuring storing, ordering, prescribing, transcribing, distribution, preparing, dispensing, administration documentation, reconciliation, monitoring and disposal

‡‡ To identify the general direction in which something is developing or changing.

§§ Category A: circumstance or event with capacity to cause harm

*** Category B: error occurred which did not reach the patients
incidents which had contributed to or resulted in harm had decreased (category E††† and above).

![Percentage by NCCMERP category 2016-2018](image)

**Figure 2. Medication incidents analysed by NCCMERP category 2016 to 2018**

To share learning, these reports also outlined the details of medication incidents which may have caused harm (category E or above) and examples of incidents which occurred with potential for harm.

Analyses of medication incidents in 2018, as well as retrospective analysis of incidents from 2016 and 2017, were reviewed at the Medication Safety Committee to identify themes for action and learning.

The themes identified were used to inform medication safety education sessions, medication safety bulletin content, medication safety minutes and the medication safety audit plan. Other medication safety issues identified from the analysis of medication incidents still required some action to mitigate identified risks and the hospital should continue this work to build on the progress made to date.

**Alerts and recalls**

The chief pharmacist received and acted on alerts and recalls‡‡‡ related to medication. An example of the action taken in response to a recent alert was outlined to inspectors.

**Opportunities for improvement**

††† Category E: an error which may have contributed to or resulting in temporary harm to the patient and required intervention.

‡‡‡ Recalls are actions taken by a company to remove a product from the market. Recalls may be conducted on a firm’s own initiative or by authorised authority.
The culture of reporting needs to be enhanced across all disciplines within a just culture,\textsuperscript{66} to capture incidents occurring throughout the entire medication management process so that key medication-related risks can be identified, understood and mitigated effectively by the hospital.

The hospital should continue to implement risk-reduction strategies to mitigate medication safety risks identified through incident analysis.

\subsection*{2.3 High-risk medications and situations}

High-risk medications require special safeguards to reduce the risk of errors and minimise harm. Strategies for reducing risk with high-risk medications and in high-risk situations\textsuperscript{55} may include high leverage, medium leverage or low leverage risk-reduction strategies\textsuperscript{66} (see Appendix 2).

High leverage risk-reduction strategies such as forcing functions, standardisation and simplification need to be implemented alongside low-leverage risk-reduction strategies such as staff education, passive information and the use of reminders.

Connolly Hospital had developed a high-risk medications list adapted from literature and local incidents with some associated risk-reduction strategies in place. However, some opportunities for implementation of high-leverage risk-reduction strategies were either at the planning or early implementation stage, and should be progressed following this inspection.

The following sample of high-risk medications and high-risk situations were reviewed in detail during this inspection to identify the risk-reduction strategies in place:

- anticoagulants\textsuperscript{66}
- insulins
- concentrated potassium chloride
- procedural sedation in the non-theatre environment.

\textbf{Anticoagulants}

Some areas for improvement in the storage of anticoagulants were observed by inspectors and should be address as a priority following this inspection:

\textsuperscript{66} The framework of a just culture ensures balanced accountability for both individuals and the organisation responsible for designing and improving systems in the workplace.

\textsuperscript{55} High-risk situation is a term used by the World Health Organization\textsuperscript{2} to describe situations where there is an increased risk of error with medication use.

\textsuperscript{66} Risk-reduction strategies: a term used to describe different ways of dealing with risks. Strategies include risk avoidance, transfer, elimination, sharing and reducing to an acceptable level.

\textsuperscript{66} Anticoagulants are commonly referred to as blood thinners that prevent or treat blood clots, but these medicines also carry an increased risk of bleeding or clots, so patient education and regular monitoring of blood levels are essential to maintain patient safety and ensure good patient outcomes.
different strengths of unfractionated heparin\textsuperscript{5555} were stocked on clinical areas and not rationalised to support safer administration.\textsuperscript{23}

different strengths of low-molecular weight heparins were observed stored together in a box on medication trolleys on one ward.

The hospital had implemented some risk-reduction strategies to support safe practice for anticoagulants which are outlined below.

- The hospital had developed a direct oral anticoagulant (DOAC)\textsuperscript{*****} prescribing and administration aid to guide staff in:
  - clinical indication and dosage
  - converting between anticoagulants
  - practical considerations regarding administration.

- There was a system in place to request a pharmacist to provide counselling for patients commenced on an anticoagulant.

- An education session on direct oral anticoagulants was provided for nurses and doctors.

- DOAC information was included in a medication safety bulletin and a medication safety minute.\textsuperscript{†††††}

**Insulin**

Insulin pens in use in the hospital were for single patient use only. Insulin pens stored in medication trolleys were observed with individual patient details and the date of opening recorded on a flag label.\textsuperscript{‡‡‡‡‡} However, not all insulin pens in use had flag labels with patient detail or dates of opening recorded.

Unopened vials of fast acting insulin were stored in a temperature controlled fridge in line with good practice. These vials had blank flag labels attached to be completed for single patient use when opened, and discarded after four weeks.

\textsuperscript{5555} Heparin is an anticoagulant specifically used in the initial treatment and prevention of deep vein thrombosis, pulmonary embolism, and arterial thromboembolism.

\textsuperscript{*****} Direct oral anticoagulants: are medications used to treat or prevent blood clots. However, there is a potential for bleeding with their use or clotting leading to stroke with missed doses. Options for anticoagulation have been expanded recently with the introduction of new anticoagulants called direct oral anticoagulants.

\textsuperscript{†††††} Medication Safety Minute: Medication information presented on a slide, which staff could read in one minute.

\textsuperscript{‡‡‡‡‡} Flag labels are used to attach label on small syringes and containers where part of the label is applied to the syringe, leaving an exposed ‘flag’ portion to ensure that details on the labels can be read, and the markings and contents of the pen remains visible.
Higher strength insulins were in use in the hospital. These insulins were dispensed with an additional alert for ‘caution high strength insulin’. However, this alert was printed in black on the back of the flag label and not immediately apparent to inspectors.

As a result of an audit undertaken in 2018, the hospital had identified opportunities for improvement which led to the development of an Insulin Prescription, Administration and Monitoring Chart to support best practice. This chart was at an advanced stage of development and due for implementation soon.

Insulin-related information was circulated to staff on the medication safety bulletins and the hospital had policies, procedures, and guidelines to support safe management of diabetes-related conditions.

**Concentrated potassium chloride**

Concentrated electrolyte solutions for injection are especially dangerous with potentially fatal consequences when not prepared and administered properly.25

The hospital had undertaken a medication safety project which reviewed concentrated intravenous potassium use in the hospital. Following this project, changes in practice had been implemented to support safe use of potassium chloride infusions such as:

- pre-mixed potassium chloride solution bags were introduced with red alert stickers on the boxes and stored separate from other intravenous solutions
- the medication record was updated to support the use of the pre-mixed potassium chloride intravenous solution
- The hospital policy on Supply of Intravenous Potassium Products was updated.

However, boxes of concentrated potassium chloride were still available on general wards, although stored securely in the controlled drugs cupboard and segregated from other medications.

Inspectors were informed that this project was in the final stage of implementation, and the remaining concentrated potassium chloride would be removed from all general wards in the coming weeks.

**Procedural sedation in the non-theatre environment**

When sedation is provided in the non-theatre environment the same standard of care is required for each patient throughout the procedure. Sedation should be
administered by a well-trained sedation team with oversight provided by a governing committee.\textsuperscript{26,27}

The process for procedural sedation was reviewed by inspectors in a non-theatre area. Procedural sedation was administered by a trained individual with patient monitoring provided by an assigned nurse. Patients were monitored within a separate recovery area until fully recovered. There was no formal discharge criteria in place in line with recommended practice,\textsuperscript{26,27} but staff advised inspectors that patients discharge was discussed with medical staff.

Only one strength of midazolam was available in line with good practice. Inspectors were informed that reversal agents were accessible but rarely used. Staff informed inspectors that the use of a reversal agent would not always trigger an incident report or review.\textsuperscript{28} However, an incident that had occurred related to use of a reversal agent had been reported as a medication incident and the pharmacy department contacted.

The hospital did not have a policy to guide and standardise procedural sedation practices throughout the hospital, but staff that spoke with inspectors were knowledgeable in relation to procedural sedation and had received additional training such as advanced cardiac life support.

**Other high-risk medications**

Examples of risk-reduction strategies in place to mitigate the risks for other high-risk medications and situations were also identified during this inspection and are outlined below.

Connolly Hospital had a number of high-leverage risk-reduction strategies in place for oral methotrexate. Inspectors were informed that oral methotrexate was not stocked in clinical areas. Only one strength methotrexate tablets were stocked in the hospital and dispensed as a patient specific single dose. In line with recommended practice, folic acid was prescribed on a different day of the week to methotrexate.\textsuperscript{29} Pharmacists would indicate the day of the week the methotrexate and folic acid was to be administered and block out all other days with an ‘x’ to prevent inadvertent daily administration.

The medication record had a separate antimicrobial section which facilitated prescribing, monitoring and administration of antimicrobials requiring therapeutic drug monitoring. The hospital had an Antimicrobial Guide to support safe prescribing, which had been updated in 2018, and included guidelines for the administration of intravenous antimicrobials. There was also a supporting dosing calculator for calculating aminoglycoside/glycopeptide doses, and guidance for
interpretation of levels. However, printed out-of-date versions of the Antimicrobial Guide were still on display in a clinical room inspected.

The hospital had developed a list of sound-alike look-alike medications (SALADs) which was seen displayed in clinical rooms visited by inspectors. No additional risk-reduction strategies were seen in practice but inspectors were informed that pharmacy-based controls were in place during procurement of new medications to avoid purchasing packaging or labelling similar to current stock. Electronic alerts for SALADs were also built into the pharmacy dispensing system.

Fentanyl patches were in use in the hospital and observed to be prescribed safely in line with good practice. However, inspectors were informed that no specific patient education was provided for patients on newly prescribed fentanyl patches. Patients or their caregivers need to know about proper use, storage, and disposal, and other risks, particularly when using opioid patches around children. This should be address by the hospital following this inspection.

Overall, during the inspection inspectors found that there was awareness among staff of the medication safety initiatives in place within the hospital. However, this was not universal across all staff who spoke with inspectors.

**Opportunities for improvement**

- The hospital needs to review the risk-reduction strategies in place for high-risk medications. Specifically in relation to:
  - the rationalisation of stock and storing of heparin
  - insulin pen labelling and storage
  - potassium concentrate ampoules
  - the education of patients or their caregivers about proper use, storage, disposal and other risks of fentanyl patches.

- The hospital needs to ensure that procedural sedation is standardised across the hospital in line with recommended best practice, supported by a hospital policy with oversight by a governing committee.

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SALADS are 'Sound-alike look-alike drugs'. The existence of similar drug and medication names is one of the most common causes of medication error and is of concern worldwide. With tens of thousands of drugs currently on the market, the potential for error due to confusing drug names is significant.

Fentanyl is indicated for management of severe chronic pain that requires continuous long-term opioid administration.
2.4 Person-centred care and support

Patients should be well informed about any medications they are prescribed and any possible side effects. This is particularly relevant for those patients who are taking multiple medications.\textsuperscript{32, 33}

**National patient experience survey**

The National Patient Experience Survey is a nationwide survey that offers patients the opportunity to describe their experiences of public acute healthcare in Ireland. Of the 764 people discharged from Connolly Hospital during the month of May 2018, 327 people completed the National Patient Experience Survey, \textsuperscript{††††††} achieving a response rate of 43\%.\textsuperscript{34}

Two questions related directly to medication in the National Patient Experience Survey. The scores for Connolly Hospital and the national scores for both 2017 and 2018 are illustrated in table 1 below.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Year</th>
<th>Connolly Hospital score</th>
<th>National score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q44. Did a member of staff explain the purpose of the medicines you were to take at home in a way you could understand?</td>
<td>2018</td>
<td>7.9</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>7.5</td>
<td>7.8</td>
</tr>
<tr>
<td>Q45. Did a member of staff tell you about medication side effects to watch for when you went home?</td>
<td>2018</td>
<td>5.6</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>4.4</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Table 1: Comparison between Connolly Hospital and national scores for Questions 44 and 45 of the National Patient Experience Survey 2017 and 2018.

The hospital’s results had improved between 2017 and 2018. However, when asked if a member of staff explained the purpose of the medications patients were to take at home in a way they could understand, the hospital’s response was below the national average both in 2017 and 2018. Patient response to staff telling them about...
medication side effects to watch for when they went home was significantly below the national average results in 2017. However, responses to the same question in the 2018 survey demonstrated an improvement, with results above the national average.

**Patient information**

Inspectors were informed that patient information on medications was provided by doctors and nurses, and by pharmacists on request, or by clinical pharmacists when the opportunity presented. Other nurses, such as diabetes and stroke clinical nurse specialists, also provided patient education.

**Medication reconciliation**

Medication reconciliation is a systematic process conducted by an appropriately trained individual, to obtain an accurate and complete list of all medications that a patient is taking on admission, discharge and other transitions in care.\(^{35, 36, 37}\)

From analysis of medication incidents, the hospital had identified transcription errors on patient admission and discharge and on transcription of the medication record as a theme for action and learning, and recommended the need for medication reconciliation.

Clinical pharmacists assigned to clinical areas were undertaking medication reconciliation. The pharmacist gathered the pre-admission medication list using two sources in line with best practice,\(^{36}\) and recorded their findings on the medication reconciliation form which was part of the medication record.

However, this medication reconciliation service was not standardised across the hospital as not all clinical areas had a clinical pharmacy service. Overall, the hospital reported that about 25-50% of patients received medication reconciliation on admission and between 0-25% on discharge.

**Systems to support medication safety**

Some systems were in place to support medication safety and optimisation in relation to the prescribing and administration of crushed medications and the prescribing and administration of medications intended for nasogastric administration. These systems were well established and supported on the wards with a clinical pharmacy services, but not all inpatient clinical areas had a clinical pharmacy service.

\(^{\text{★★★★★}}\) **A Best Possible Medication History (BPMH) is a medication history obtained by a clinician which includes a thorough history of all regular medication use (prescribed and non-prescribed), using a number of different sources of information.**
Patient weight measurements are important for medications that require an individual weight-based dose and patient known allergies should be available throughout the episode of care. Patient allergies or weights were not recorded on all medication recorded reviewed by inspectors.

**Opportunities for improvement**

- The hospital should endeavour to expand the medication reconciliation service to all patients on transitions of care.
- In line with themes identified by the hospital through incident analysis, the hospital should ensure that patients have weight and allergies recorded to support safer medication management.

### 2.5 Model of service and systems in place for medication safety

**Clinical pharmacy service**

International studies support the role of clinical pharmacists in hospital wards in preventing adverse drug events.

Inspectors found well-established systems in place to support the safe prescribing and administration of medications in a clinical area with a full clinical pharmacy service. Clinical pharmacists reviewed patient’s medications, with a view to identifying opportunities to optimise the impact of medications while minimising medication-related problems. Recommendations made by pharmacists were discussed with doctors directly or at the weekly multidisciplinary ward rounds attended by the clinical pharmacist.

A review of clinical pharmacy services on a ward with a full clinical pharmacy service over an eight week period identified that:

- 85% of patient received medication reconciliation on admission
- 100% of patient had an inpatient clinical pharmacist review
- 100% of medication records transcribed were reviewed by the clinical pharmacist
- 49% of patients had medication reconciliation completed on discharge.

The clinical pharmacy service was not standardised throughout the hospital and some patient areas had only partial or no clinical pharmacy service. The hospital had prioritised the availability of the clinical pharmacy service to high-risk patient areas.

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Clinical pharmacy describes the activity of pharmacy teams in ward and clinic settings.
Considering that clinical pharmacists have a key role in supporting patient safety, the absence of this service in all clinical areas was of concern to HIQA.

**List of approved medications (Formulary)**

The hospital did not have a list of medications approved for use in the hospital, also referred to as a formulary. The hospital outlined that the possible development of a group formulary had been discussed, but this had not been progressed to date.

The purpose of maintaining this list is to ensure appropriate governance of medications approved for use within the hospital and that a safety evaluation occurs before new medications are introduced. The hospital had a system in place for the approval of new medicines which was under the governance of the Drugs and Therapeutic Committee. However, there was no process to review medication currently in use in the hospital.

**Opportunities for improvement**

- The hospital should continue to work towards the provision of a clinical pharmacy service to all clinical areas of the hospital.

- The hospital should look to develop or adapt a list of all medications approved for use in the hospital to improve patient care through improved selection and rational use of medications and ensure appropriate governance of prescribed medications. This work could be progressed by collaboration with other hospitals within the group.

**2.6 Use of information**

Access to relevant up-to-date and accurate medicines reference information is essential at all stages of the medication management pathway.

Medicines information was accessible to staff via the intranet on computers, with some information available in hard copy. Examples of medicines information available included:

- intravenous medication administration guidelines
- DOAC guidelines including algorithm for decision-making
- antimicrobial guidelines (also available via an application that can be downloaded to a mobile device)
- the British National Formulary (BNF)
- medicines complete (including BNF, Martindale, Stockley)

******* Formulary: a managed list of preferred medications that have been approved by the hospital’s Drugs and Therapeutics Committee for use at the hospital.
• NEWT guidelines.

These guidelines were not always accessible in clinical areas where medications were prepared. Staff informed inspectors that, if required, they could print the relevant guidance at the nurses’ station and bring it to the medication preparation room.

It is recommended, by both the Health Service Executive\(^{47}\) and the National Clinical Effectiveness Committee\(^{48}\) that policies, procedures and guidelines are reviewed and updated every three years. Policies, procedures and guidelines viewed by inspectors during the inspection were up to date; however, some out-of-date guidance was seen on display in clinical areas visited by inspectors and this should be reviewed by the hospital following this inspection.

**Opportunities for improvement**

• Up-to-date evidence-based medicines information should be accessible to staff at all stages of the medication management pathway including prescribing and preparation of medications.

**2.7 Monitoring and evaluation**

Monitoring of medication safety should be formally planned, regularly reviewed and centrally coordinated with recommendations implemented and re-audited to ensure the required improvements are achieved.\(^{15}\)

In Connolly Hospital audit was included in the annual work plan. A number of medication safety audits were undertaken by the hospital in 2018, mostly by the pharmacy department. Audit results were discussed at the Medication Safety Committee and reported to the Drugs and Therapeutics Committee.

Medication safety areas audited included:

• insulin storage, prescribing and management at ward level
• concentrated intravenous potassium
• discharge prescriptions
• clinical pharmacy service on an inpatient ward
• benzodiazepine and z-drug\(^{†††††††} \) usage
• missed dose audit
• pharmacy intervention acceptance rate in emergency department
• nursing metrics

\(^{†††††††} \) Z drugs are non-benzodiazepine hypnotics. They are short acting drugs generally prescribed to help people sleep where severe difficulty falling asleep. Waking up often during the night or having trouble going back to sleep impacts day-to-day life.
Overall there was good oversight of audits. Some individual audit reports viewed by inspectors did not have action plans included, but the hospital provided an overall action plan for most medication audits which outlined the recommended action, the plan, status and person responsible.

A discharge summary and prescription audit identified issues with transcribing medication lists and/or prescriptions; this had also been identified through incident analysis. Inspectors were told that in response, the discharge summary and discharge prescription were merged in one clinical area to eliminate this risk. High-leverage risk-reduction strategies like this should be shared across other clinical areas to mitigate the identified risk.

**Opportunities for improvement**

- Evaluation and monitoring of the use and safety of medications should continue to be planned in line with the hospital’s overall priorities and aligned to a medium to long-term medication safety strategy.

### 2.8 Education and training

Staff education can effectively augment error prevention when combined with other strategies that strengthen the medication-use system.⁴⁹

Connolly Hospital had a medication safety education programme in place and staff education was a core objective of the annual medication safety programme. A variety of initiatives were used by the hospital to keep staff up to date and informed on issues relating to medication safety including:

- induction for nurses and doctors which included a variety of topics related to medication safety
- education sessions for nurses and doctors by pharmacy
- nurse practice development education on medication management
- HSELandD†††††††† medication management module⁵⁰
- quarterly medication safety bulletins
- weekly medication safety minutes.

The Medication Safety Bulletin circulated on a quarterly basis was informed by local incident analysis. The Medication Safety Minute initiative was adopted with permission from another hospital, and was well received by staff who spoke to inspectors.

††††††† The HSE’s eLearning and development service.
Regular education sessions provided by pharmacy were well attended by doctors but attendance by nursing staff could be improved. Medication safety education sessions were also delivered by nurse practice development staff. However, coordination of these education sessions within the medication safety programme was not apparent to inspectors.

**Opportunity for improvement**

- The hospital should ensure that professionals have the necessary competencies to deliver high-quality medication safety. This could be enhanced by a mandatory ongoing programme of education for medication safety, coordination between disciplines and aligned to the hospital’s medications safety programme.\(^\text{11}\)
3. Summary and conclusion

Medications play a crucial role in maintaining health, preventing illness, managing chronic conditions and curing disease. However, errors associated with medication usage constitutes one of the major causes of patient harm in hospitals and the impact of medication errors can be greater in certain high-risk situations. Understanding the situations where the evidence shows there is higher risk of harm from particular medications and putting effective risk-reduction strategies in place is key for patient safety.

Connolly Hospital had strengthened the governance arrangements in place for medication safety since the previous medication safety inspection.

The hospital had developed a formalised medication safety programme and had set up a Medication Safety Committee. The hospital’s medication safety programme was outlined in an Annual Work Plan for 2018 and 2019, which was implemented by the Medication Safety Committee with oversight from the Drugs and Therapeutics Committee. The overall medication safety programme was strengthened by the appointment of a medication safety facilitator.

The hospital, in the development of their medication safety programme, had gathered information though audit and incident analysis and implemented some quality improvements. Medication safety information was communicated to staff through education and other novel ways, to share learning.

The hospital did not have a strategic plan for medication safety but outlined that they were gathering medication safety intelligence to identify priorities to inform a strategy.

Connolly Hospital had developed a high-risk medications list adapted from literature and local incidents with some associated risk-reduction strategies in place. However, opportunities for implementation of high-leverage risk-reduction strategies to mitigate the risks associated with high-risk medications and high-risk situations were either at the planning or early implementation stage, and should be progressed following this inspection.

On a clinical area with full clinical pharmacy service, inspectors found well-established systems in place to support the safe prescribing and administration of medications. However, the clinical pharmacy service was not standardised throughout the hospital, and a large number of inpatient clinical areas had only partial or no clinical pharmacy service which was of concern to HIQA.

Medication reconciliation was undertaken by clinical pharmacists on the
areas to which they were assigned, but this service was not standardised across the hospital.

The hospital should continue to work towards improving medication safety practices by progressing the implementation of priorities and actions identified through its own monitoring of practice and addressing the findings of this report.

This report should be shared with relevant staff at the Connolly Hospital and the Royal College of Surgeons of Ireland Group to highlight the findings from this inspection including what has been achieved to date and to foster collaboration in relation to opportunities for improvement.
4. References


## 5. Appendices

### Appendix 1: Lines of enquiry and associated National Standards for Safer Better Healthcare.

<table>
<thead>
<tr>
<th>Area to be explored</th>
<th>Lines of enquiry</th>
<th>Dimensions/Key areas</th>
<th>National Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership, governance and management</td>
<td>1. Patient safety is enhanced through an effective medication safety programme underpinned by formalised governance structures and clear accountability arrangements.</td>
<td>Capacity and capability</td>
<td>3.7, 5.1, 5.2, 5.5, 5.4, 5.6, 5.11</td>
</tr>
<tr>
<td>Risk management</td>
<td>2. There are arrangements in place to proactively identify and manage risk related to medication safety throughout the hospital.</td>
<td>Quality and Safety</td>
<td>3.1.3.2, 3.3.3 .6, 5.8, 5.11, 8.1</td>
</tr>
<tr>
<td>High-risk medications</td>
<td>3. Hospitals implement appropriate safety measures for high-risk medications that reflect national and international evidence to protect patients from the risk of harm.</td>
<td>Quality and Safety</td>
<td>2.1, 3.1</td>
</tr>
<tr>
<td>Person centred care and support</td>
<td>4. There is a person centred approach to safe and effective medication use to ensure patients obtain the best possible outcomes from their medications.</td>
<td>Quality and Safety</td>
<td>1.1, 1.5, 3.1, 2.2, 2.3</td>
</tr>
<tr>
<td>Model of service and systems for medication management</td>
<td>5. The model of service and systems in place for medication management are designed to maximise safety and ensure patients’ healthcare needs are met.</td>
<td>Quality and Safety</td>
<td>2.1, 2.2, 2.3, 2.6, 2.7, 3.1, 3.3, 5.11, 8.1</td>
</tr>
<tr>
<td>Use of Information</td>
<td>6. Essential information on the safe use of medications is readily available in a user-friendly format and is adhered to when prescribing, dispensing and administering medications.</td>
<td>Quality and Safety</td>
<td>2.1, 2.5, 8.1</td>
</tr>
<tr>
<td>Monitoring and evaluation</td>
<td>7. Hospitals systematically monitor the arrangements in place for medication safety to identify and act on opportunities to continually improve medication.</td>
<td>Quality and Safety</td>
<td>2.8, 5.8</td>
</tr>
<tr>
<td>Education and training</td>
<td>8. Safe prescribing and drug administration practices are supported by mandatory and practical training on medication management for relevant staff.</td>
<td>Capacity and capability</td>
<td>6.2, 6.3</td>
</tr>
</tbody>
</table>
Appendix 2: Hierarchy of effectiveness of risk-reduction strategies in medication safety.

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Appendix 3: National Coordinating Council for Medication Error Reporting and Prevention. Index for Categorising Medication Errors

Definitions

Harm
Impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting there from.

Monitoring
To observe or record relevant physiological or psychological signs.

Intervention
May include change in therapy or active medical/surgical treatment.

Intervention Necessary to Sustain Life
Includes cardiovascular and respiratory support (e.g., CPR, defibrillation, intubation, etc.)


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