Report of the announced inspection of medication safety at Our Lady’s Hospital Navan.

Date of announced inspection: 26 November 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.
**Table of Contents**

1. Introduction.......................................................................................................................... 7

2. Findings at Our Lady’s Hospital Navan .............................................................................. 10
2.1 Leadership, governance and management ................................................................. 10
2.2 Risk management ........................................................................................................ 11
2.3 High-risk medications and situations ........................................................................... 13
2.4 Person-centred care and support .................................................................................. 17
2.5 Model of service and systems in place for medication safety .................................. 20
2.6 Use of information ....................................................................................................... 21
2.7 Monitoring and evaluation ........................................................................................... 22
2.8 Education and training ................................................................................................. 24

3. Summary and conclusion .................................................................................................. 26

4. References ......................................................................................................................... 28

5. Appendices ......................................................................................................................... 34

   Appendix 1: Lines of enquiry and associated National Standards for Safer Better Healthcare......................................................................................................................................... 34

   Appendix 2: Hierarchy of effectiveness of risk-reduction strategies in medication safety....................................................................................................................................... 35
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 Standards1 (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.

High-risk medications are those that have a higher risk of causing significant injury or harm if they are misused or used in error.12 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.13

High-risk situation is a term used by the World Health Organization3 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).14

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.14 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.15

† Lines of enquiry are the key questions or prompts that inspectors use to help inform their inspection, assessment or investigation.
‡ 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 Our Lady’s Hospital Navan by Authorised Persons from HIQA; Nora O’ Mahony and Dolores Dempsey Ryan. The inspection was carried out on 26 November 2019 between 09:00hrs and 16:55hrs.

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

- Coronary care unit, endoscopy unit and male medical
- Male surgical and female surgical.

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

- Group one: the chairperson of the Drugs and Therapeutics Committee, the chief pharmacist and the risk manager.
- Group two: the general manager and the nurse practice development coordinator, deputising for 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

Our Lady’s Hospital Navan is a model 3 general hospital within the Ireland East Hospital Group. The hospital provides a range of inpatient and out-patient services, including general medicine, general surgery and orthopaedics.
2. Findings at Our Lady’s Hospital Navan

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

Our Lady’s Hospital Navan had sustained and embedded the governance arrangement in place for medication safety since the previous medication safety inspection in 2018.\textsuperscript{16} The Drugs and Therapeutics Committee was responsible for the oversight of medication safety within the hospital\textsuperscript{17} with formalised governance arrangements and clear lines of accountability in place for medication safety.\textsuperscript{18}

The Drugs and Therapeutics Committee was meeting in line with its terms of reference. There was overall good attendance from members with good representation from pharmacy, nursing, risk and management. However, a consultant anaesthetist who was the chair of the committee was the only medical representative present. Membership of the committee should reflect the size of the hospital and services provided, with representatives from all the major specialities.\textsuperscript{13}

The hospital did inform inspectors that documents approved by the Drugs and Therapeutics Committee were submitted following review and approval from the relevant subcommittee such as the antimicrobial stewardship or venous thrombophylaxis committee, and consultants requesting approval for new medications were invited to attend meetings.

The hospital had developed a Medication Safety Programme for 2017-2018 and 2019-2020.\textsuperscript{10,19} However, inspectors found that this plan was not regularly reviewed to monitor progress against the set objectives. Inspectors did find however, that the hospital had progressed other medication safety initiatives based on local monitoring and evaluation of incidents, audits and key performance indicators. The hospital had also developed a quality improvement plan following the last medication safety inspection and evidence of some improvement was observed in some of the areas outlined, which will be discussed throughout this report.

There was evidence of support for quality improvement at senior management level through the hospitals involvement in initiatives such as ’Rapid Improvement Events’.\textsuperscript{5}

\textsuperscript{5} Rapid improvement events, involve a small team devoting their time over a short time frame to analysing and improving a narrowly defined targeted issue or process. Rapid improvement events are used to augment, not replace, daily continuous improvement.
'Stop the Clots Road show** and 'Collective Leadership,††' which were supported by the Ireland East Hospital Group.

### 2.2 Risk management

The hospital had one hospital risk register on which all hospital risks were recorded. Two medication-related risks were included in the hospital risk register. The risks related to the risk of inappropriate administration of medication due to lack of clinical pharmacy service and the risk of inappropriate access to medications and prescriptions pads and drug diversion. The existing and required control measures were outlined with review dates, however these risks were currently overdue for review.

Inspectors were informed that the risk register would be devolved to department level in the future and risks would be escalated as required through the appropriate management structures.

The hospital had a system in place for reporting medication incidents. Medication incidents were submitted to the risk manager and inputted onto the National Incident Management System.‡‡

Medication incident reporting had increased with 134 medication incidents reported in 2017, rising to 183 in 2018 and an upward trend seen in reported for 2019 year to date. Pharmacists, followed by nurses reported the majority of medication incidents. However, there was still room for improvement in reporting, with low reporting rates from medical staff and some clinical areas.

**Analysis of incidents**

Quarterly medication incident reports were produced by the hospital, with incidents outlined by discipline and area for the previous quarter, and year to date. Details of all incidents which occurred in the previous quarter were also included in these

---

** The Ireland East Hospital Group and Thrombosis Ireland thrombosis prevention, hospital and community awareness road show.
†† Collective Leadership and Safety Cultures (Co-Lead) designing and implementing collective leadership interventions for different team types and testing the impact of these interventions on staff performance and patient safety. The overall aim is to support quality and safety cultures through the development of a new model of leadership that is associated with effective team performance.
‡‡‡‡ 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).
reports. The medication incident reports were reviewed by the Drugs and Therapeutics Committee and circulated to staff.

There was room for improvement in the analysis of medication incidents, to support identification of trends for targeted improvement. However, the hospital demonstrated learning opportunities from the medication incidents reviewed such as the need for recording of patient allergies, weight appropriate dose prescribing and total dose prescribing. The information was shared with staff through regular 'Drug Safety Memos,' and staff who spoke with inspectors were knowledgeable about the medication safety information circulated.

There was also evidence that incident reporting informed quality improvement for example the medication record was revised to include pre-printed 'micrograms, mg, units or mL,' to support correct use of abbreviations.

**Alerts and recalls**

The chief pharmacist received and acted on alerts and recalls related to medications, and the recent management of a medication recalls was outlined to inspectors.

**Opportunities for improvement**

- The hospital needs to ensure that the membership of the Drugs and Therapeutics Committee reflects the size of the hospital and services provided, with representatives from all the major specialties.

- The hospital should support targeted promotion of incident reporting among disciplines and areas with lower reporting rates, so that a culture of medication incident reporting is enhanced across all disciplines and areas within a just culture, to enable identification of medication-related risks.

- Incidents analysis could be expanded to identify trends or patterns in relation to risk to support identification of targeted area for improvement.

---

**Prescribing the medication dose based on the patient’s weight**

*** Calculating and prescribing the total dose of medication to be administered bases on for example mg per kg.

††† The Medication Record is the medication prescription and administration record, drug kardex or drug chart.

‡‡‡ 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 an authorised authority.

§§§ The framework of a just culture ensures balanced accountability for both individuals and the organisation responsible for designing and improving systems in the workplace.
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**** may include high leverage, medium leverage or low leverage risk-reduction strategies†††† (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.

Our Lady’s Hospital Navan had developed a high-risk medications list adapted from evidence-based literature and local incidents, with associated risk-reduction strategies in place relevant to the services provided by the hospital.

The APINCH‡‡‡‡ acronym was used to outline the hospital’s high-risk medications on a poster, which clearly outlined the risk group, the specific high-risk medication in each group, the risks associated with the medications and the safety measures in place to reduce that risk. See example for ‘P’ potassium from the hospital’s high-risk medications A PINCH below.

<table>
<thead>
<tr>
<th>Risk Group</th>
<th>Specific Medicines</th>
<th>Risk</th>
<th>Safety Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium &amp; Electrolytes</td>
<td>IV Potassium</td>
<td>IV Potassium can be fatal if given inappropriately.</td>
<td>Guidelines on Supply, Usage and Administration of Concentrated Potassium. Use ready-mixed potassium infusion bags where possible. Restricted access to concentrated potassium—order as controlled drug.</td>
</tr>
<tr>
<td></td>
<td>IV Magnesium</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IV Calcium</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IV Hypertonic Sodium Chloride</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: Our Lady’s Hospital Navan High-Risk Medications- A PINCH Acronym

The hospital’s high-risk medications were also seen highlighted in ‘red’ on ward stock lists seen in the clinical areas visited.

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§§§§

**** High-risk situation is a term used by the World Health Organization² to describe situations where there is an increased risk of error with medication use.  
†††† 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.  
‡‡‡‡ Anti-infectives, Potassium, Insulin’s, Narcotics, Chemotherapy, Heparin and other anticoagulants  
§§§§ 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.
- insulins
- concentrated potassium chloride
- procedural sedation in the non-theatre environment.

**Anticoagulants**

The medication record was currently being revised by the hospital, and inspectors were informed all anticoagulant medication would be prescribed in the same section to promote safer prescribing of anticoagulants and to support avoidance of inadvertent duplication of these medications.

All direct oral anticoagulants (DOACS) were dispensed for specific named patients and the pharmacist reviewed the medication record of patients newly prescribed anticoagulants.

The anticoagulant clinical nurse specialist provided patient education for patients who were commenced on an anticoagulant. Guidance documents were available to support staff in the management of patients on anticoagulant therapy.

No unfractionated heparin was stocked on general wards and stocks were rationalised and monitored in the approved clinical areas. The hospital had recently updated its ‘Unfractionated Heparin Intravenous Infusion Procedure’ to standardise the prescribing, administration, monitoring, dose adjustment and recording of heparin. A pre-printed prescription label was developed to guide the process.

**Insulin**

The hospital had risk-reduction strategies in place to mitigate against the risks associated with insulin. Examples of these are outlined below:

- insulin pens in use in the hospital were for single patient use only
- opened insulin pens were stored in the medication trolley with individual patient details and date of opening recorded on a flag label
- multidose vials of fast acting insulin were stored in a temperature controlled fridge for single patient use only, and reported to be labelled with patient’s details and dated on opening
- the term ‘units’ was pre-printed on the medication record
- insulin was double checked prior to administration
- a diabetes clinical nurses specialist was available for patient review and education
the hospital had hypoglycaemic***** guidelines and ‘hypoglycaemic kits’†††††

A hospital safety measure for high strength insulins was to prescribe the specify brand name and strength with a circle drawn around the strength. An example seen in practice was not circled; however, staff who spoke to inspectors were aware of the high-strength insulins in use in the hospital.

**Concentrated potassium chloride**

Concentrated electrolyte solutions for injection are especially dangerous with potentially fatal consequences when not prepared and administered properly.\(^{23}\) National and international evidence recommends the complete removal of concentrated potassium from patient care areas as the goal, with the use of ready-mixed potassium infusions stored segregated from other solutions.\(^{23,24,25,26,27}\)

The goal in Our Lady’s Hospital was the complete removal of concentrated potassium from patient care areas, to support this:

- ready-mixed bags were stocked on the general wards, segregated from other intravenous fluids. The use of ready-mixed bags was promoted when possible.
- concentrated potassium chloride ampoules were only stocked in approved areas such as the intensive care and high dependency units, and only dispensed to general wards on a patient specific basis, following pharmacy review for appropriateness.\(^{28}\)
- concentrated potassium chloride ampoules were labelled with ‘must be diluted’ stickers when dispensed and stored segregated in the control drug cupboard.
- potassium chloride infusions were administered via pumps and the local policy defined maximum rates and the use of a central line and cardiac monitoring for faster rates.

**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 trained sedation team with oversight by a governing committee.\(^{29}\)

***** Hypoglycaemic: when a person’s blood sugar falls below the normal level.
††††† Hypoglycaemic kit: ‘Hypo kit’ provided quick access to equipment required to support effective treatment for patients in the event of hypoglycaemia.
During this inspection, inspectors visited the coronary care unit and the endoscopy unit, which are the areas within Our Lady’s Hospital Navan where procedural sedation was provided to patients.

Patients undergoing procedural sedation in both the coronary care unit and the endoscopy unit were pre-assessed before admission and provided with written instructions relating to the procedure and care after discharge.

Procedural sedation was administered by a consultant anaesthetist in the coronary care unit and by endoscopist in the endoscopy unit and an assigned nurse monitored patients during and after the procedure. Each unit had the required emergency resuscitation equipment in place.

In line with best practice, there was rationalisation of storage of medication used for procedural sedations. Inspectors were informed that the use of reversal agents would be reported as a medication incident and this was monitored by the pharmacy department.\(^{30}\) Data provided to inspectors confirmed that the use of procedural sedation in the endoscopy unit was audited in line with best practice.

The endoscopy unit had a guideline for the administration of non-anaesthetic sedation and the care of an adult sedated patient during an endoscopy procedure, however, this document was overdue for review. The hospital needs to ensure a standardised approach to procedural sedation across the hospital is supported by guidance.

**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.

Our Lady’s Hospital Navan 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.\(^{31}\) All requests for methotrexate triggered a pharmacist review of the patient’s medication record.

Pharmacists would indicate the day of the week the methotrexate was to be administered and block out all other days with an ‘x’ to prevent inadvertent daily administration. In line with recommended practice,\(^{32}\) folic acid, when prescribed was also endorsed by the pharmacist for administration on a different day of the week to methotrexate. Inspectors were informed that medication incidents reported related to methotrexate did not reach the patient due to the risk-reduction strategies in place.
The introduction of an antimicrobial pharmacist since the last inspection has resulted in improvement in appropriate prescribing, administration and monitoring of patients on antimicrobials, and those requiring therapeutic drug monitoring. A consultant microbiologist visited the hospital one day per week but was available by phone Monday to Friday, with on-call cover out of hours. The antimicrobial pharmacist was available to support staff in safer use of antimicrobials, and antimicrobial guidelines were available on hospital computers, and to download as a smartphone application. Hard copy guidance was also available and seen printed in the clinical areas visited.

The hospital had developed a list of sound-alike look-alike drugs (SALADs) which was seen displayed in clinical rooms visited by inspectors. Pharmacy-based controls were in place during procurement of new medications to try to avoid purchasing medication with packaging similar to current stock. Inspectors were informed that sound-alike look-alike medications dispensed from the pharmacy had sound-alike look-alike stickers attached to the box to raise staff awareness.

Inspectors were also informed that patients prescribed fentanyl patches, or their family, were provided with education about proper use, storage, disposal and other risks, particularly when using patches around children.

**Opportunities for improvement**

- Procedural sedation should be standardised across the hospital, supported by a local policy and with oversight by a governing committee.

**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.  

**National Inpatient Experience Survey**

The National Inpatient Experience Survey is a nationwide survey that offers patients the opportunity to describe their experiences of public acute healthcare in Ireland. Of the 337 people discharged from Our Lady’s Hospital Navan during the month of

---

*††††† Sound-alike look-alike drugs (SALADS) or Look-alike sound-alike (LASA). The existence of similar 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.*
May 2019, 176 completed the National Inpatient Experience Survey, achieving a response rate of 53% for the hospital. 

Two questions related directly to medication in the National Inpatient Experience Survey. The scores for Our Lady’s Hospital Navan and the national scores for 2017, 2018 and 2019 are illustrated in table 1 below.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Year</th>
<th>Our Lady’s Hospital Navan 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>2019</td>
<td>8.4</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>8.4</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>2019</td>
<td>5.6</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>5.2</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>5.6</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Table 1: Comparison between Our Lady’s Hospital Navan and national scores for Questions 44 and 45 of the National Inpatient Experience Survey 2017, 2018 and 2019.

The results showed that Our Lady’s Hospital Navan scored higher or level with the national average in responses each year. The hospital was supporting the ‘Know Check Ask campaign’, which encourages people who take regular medicines, and those assisting them to: ‘Know’ their medicines and keep a list, to bringing the list to

---

55555 The National Inpatient Experience Survey is a nationwide survey which asks people for feedback about their stay in hospital. The survey is a partnership between HIQA, the Health Service Executive (HSE) and the Department of Health. All patients over the age of 16 discharged during May who spent 24 hours or more in a public acute hospital, and have a postal address in the Republic of Ireland are asked to complete the survey.

****** Please note that the numbering of questions changed after the 2017 survey was completed. Question 44 ‘…..’ was originally question 45 in the 2018 survey and question 45 ‘…..’ was originally question 46.

appointments and if admitted to hospital. To ‘check’ that they are using the right medicine in the right way and to ‘ask’ their healthcare professional if they are unsure.

**Patient information**

Inspectors were informed that patient information on medications was provided by doctors and nurses, or pharmacists on request. Inspectors were also informed that clinical nurse specialists played a large role in patient education in specialist areas such as diabetes, anticoagulation, heart failure and stroke.

**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.\(^{36, 37, 38}\)

Since March 2019 a pharmacist undertook medication reconciliation in the emergency department two days per week, resulting in 18% of patients admitted to the hospital receiving this service. Medication reconciliation was not undertaken for patients on discharge.

The pharmacist gathered the pre-admission medication information using two sources of information, as necessary for accuracy.\(^{37}\) The information was recorded on medication reconciliation admission section of the medication record. This section had been expanded on the revised draft of the medication record, in response to findings from medication reconciliation monitoring.

Since the medication reconciliation process commenced this pharmacist had monitored discrepancies found, such as; omission of medications, incorrect medication dose, strength or name prescribed

The number and type of discrepancies found through the medication reconciliation process further supported the need for expansion of the medication reconciliation process for all patients. To support this, the hospital had secured some funding for a pharmacist to join the Frailty Intervention Therapy Team,\(^{††††††}\) based in the emergency department, for a period of time. It is anticipated that this expanded pharmacy service will include medication reconciliation for identified frail patients requiring intervention.

\(^{††††††}\)The FIT Team is a group of health and social care professionals who identify the frail in emergency departments and provide early comprehensive multidisciplinary assessment to support meeting the needs of the frail elderly in as timely a manner as possible.
Other issues outside the medication reconciliation process were identified by the pharmacist such as: inappropriate dose for low weight patients, drug interactions and doses in excess of the recommended maximum daily dose. A safe prescribing metric had been introduced to monitor the percentage of patients less than 50kg or greater than 100kg with correct medication dose prescribed. There was some improvement in practice following the introduction of the metric, although this improvement was not sustained over time. However, the monitoring continues to track and support improvement in safer prescribing over a longer period of time.

**Systems to support medication safety**

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. The hospital had promoted the recording of patient allergy status on the medication records and the signature of the staff member who recorded same, before medications could be administered.

Documentation of allergy status was a key performance indicator measured by the hospital with 98% compliance. This was similar to inspector’s findings, as patient’s allergy status was recorded on all medication records reviewed. However, patient weights were not recorded on all medication records reviewed.

**Opportunities for improvement**

- The hospital should endeavour to expand the medication reconciliation service to all patients on transitions of care.
- The hospital should continue to support pharmacy involvement in the Frail Intervention Therapy Team.
- The hospital should ensure that patient’s weight measurements are available to support safe prescribing of individual weight-based dose medications.

**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. Clinical pharmacists play important roles

---

55555 Clinical pharmacy service describes the activity of pharmacy teams in ward and clinic settings. The following core activities are involved in providing clinical pharmacy services: prescription monitoring, prescribing advice, optimising therapeutic use of medicines, adverse drug reaction detection and prevention, patient education and counselling, inter-professional education about medicines. It may also involve some or all of the following: medication history taking, medication reconciliation, specialist clinics e.g. HIV, clinical audit, protocol/guideline development.
in healthcare settings, and their activities benefit patients, healthcare teams well as healthcare organizations.43

Similar to the previous inspection16 HIQA found that Our Lady’s Hospital Navan did not have a clinical pharmacy service in place for inpatients in the hospital, which was of concern to HIQA. However, the antimicrobial pharmacist did review the medication records of all patients in the intensive care unit. Both the antimicrobial pharmacist and the pharmacist undertaking medication reconciliation two days per week in the emergency department also highlighted and endorsed any medication related issues identified in the medication records reviewed.

**List of approved medications (Formulary)**

The hospital had a system in place for the approval of new medications which was under the governance of the Drugs and Therapeutic Committee to ensure appropriate oversight of medications approved for use within the hospital and that a safety evaluation occurred before new medications were introduced. 46,47

The hospital had not made any progress in the development of a formulary, ******* despite a previous HIQA recommendation to establish same.16 This work could be progressed by collaboration with other hospitals within the Ireland East Hospital group.

**Opportunities for improvement**

- The hospital should progress the provision of a clinical pharmacy service for all inpatients, and examine how best to allocate the resources currently available.

- The hospital should look to develop 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.

**2.6 Use of information**

Access to relevant up-to-date and accurate medicine reference information is essential at all stages of the medication management pathway.11, 15

Our Lady’s Hospital Navan had a number of medication information sources available such as:

- commercially available intravenous medication administration guidelines

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

Our Lady’s Hospital Navan

Health Information and Quality Authority

- British National Formulary-hard copy and available on computer
- Medicines complete
- antimicrobial guidelines
- medicines information folder on computers, which contained information and links to other medication related topics.

The intravenous medications administration guidelines were reviewed by the hospital and local information was added to the system as relevant to local services and the patient cohort, however some of this information was overdue for review. The medication information was accessible to staff on ward computers, but not all areas visited had access to medication guidance where medications were prepared.

It is recommended, by both the Health Service Executive and the National Clinical Effectiveness Committee that policies, procedures and guidelines are reviewed and updated every three years. Similar to findings at the previous medication safety inspection many of the medication-related policies, procedures and guidelines viewed by inspectors during the inspection were overdue for review.

Opportunities for improvement

- The review of policies, procedures and guidelines needs to be progressed to support medication safety practices at the hospital.

- Up-to-date policies, procedures and guidelines should be available to staff at the point of medication preparation in all areas.

2.7 Monitoring and evaluation

Monitoring of medication safety should be formally planned, regularly reviewed and centrally coordinated with resulting recommendations actioned, and the required improvements implemented.

Monitoring and evaluation of medication safety was undertaken in Our Lady’s Hospital Navan through a number of methods including audit, key performance indicators and nursing metrics. The hospital did not have an audit plan but audits were centrally coordinated by the risk manager. Audits reviewed by inspectors related mostly to venous thrombophylaxis, which were driven by the Venous Thrombophylaxis Working Group and antimicrobial stewardship monitoring and audits, which had been a positive improvement since the recruitment of an antimicrobial pharmacist.

The recruitment of an audit nurse facilitator since the previous inspection also supported the completion of nursing medication safety audits such as:
- audit of compliance with safe storage for medication
- use of injectable devices and multidose vials
- medication administration and management in the general theatre.

However not all audits reviewed by inspectors had time bound action plans with the responsible person identified to ensure recommendations were implemented and re-audited to ensure the required improvement had occurred in practice.

Four key performance indicators were captured by the hospital as ‘safe prescribing metrics’. The first metric gathered was related to the correct prescribing of weight related doses, and then subsequent metrics were added as seen in an example from the hospital’s data in Figure 1 below:

- percentage of patients with total dose prescribed correctly
- percentage of patients with insulin doses expressed as ‘units’
- percentage of patients less than 50kg or greater than 100kg dosed correctly
- percentage of patients doses expressed as ‘micrograms’

Multidisciplinary involvement, support from senior managers and forcing functions were identified by the hospital as the main drivers for culture change and improvements seen with regard to the safer prescribing metrics. These metrics were captured monthly and results were feedback to staff, which is essential to motivate staff to participate in improvement activities, highlight areas that are working well and identify areas for further improvement.\(^{15,50}\)

The hospital was also in the process of implementing additional forcing functions with the inclusion of pre-printed ‘units’ and ‘micrograms’ in the regular section of medication record, which would further support safer prescribing for metrics with lower compliance. The hospital outlined that once the current safe prescribing metrics were imbedded at the required target levels other additional metrics would be identified and measured.

**Safe prescribing metrics 2019**
Opportunities for improvement

- Audits should have time-bound action plans, which are implemented and re-audited to ensure the required improvements are achieved.

2.8 Education and training

Staff education can effectively augment error prevention when combined with other strategies that strengthen the medication-use system.51

Doctors attended a short medication safety session on induction and nurses completed an intravenous drug administration education session and competency assessment.

The hospital did not have a structured ongoing medication safety programme but doctors attended weekly education session, grand rounds and journal clubs at which pharmacists and the risk manager had provided medication and risk related education sessions.

Nurses were encouraged to complete the HSE LanD††††††† medication management module. Records reviewed demonstrated that approximately only 47% of staff had completed this module.

††††††† The health service elearning and development service
Nurses also attended ‘Teaching Tuesday,’ which was an initiative commenced to provide nurses and other staff with information updates. Topics covered at the Teaching Tuesday sessions included topics such as DOACS and heart failure.

Workshops known as ‘Essence of Care’ were also held one or twice a year, where staff visited work-stations manned by hospital staff such as pharmacists and clinical nurse specialists, who provided brief staff updates on topics such as polypharmacy and high-risk medications.

The hospital also informed inspectors that the ‘Stop the Clot Road show’ had recently visited the hospital grounds where staff and patients were invited to board the ‘red bus’ which was designed to create awareness and educate healthcare professionals as well as patients and their families on the danger of blood clots.

Information and updates were shared with staff through regular ‘Drug Safety Memos’. Staff were familiar with the medication safety information circulated, and printed copies were viewed on notice boards and in folders on the clinical areas visited. The Drug Safety Memos were also accessible on the hospital’s computers.

**Opportunities for improvement**

- The hospital should ensure that professionals have the necessary competencies to deliver high-quality medication safety. This could be further supported by the hospital through the developing a structured targeted ongoing programme of education for medication safety.52

---

***** The Ireland East Hospital Group and Thrombosis Ireland thrombosis prevention, hospital and community awareness road show.
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.

Since the last HIQA inspection Our Lady’s Hospital Navan had sustained and embedded the governance arrangement in place for medication safety. The hospital had developed a Medication Safety Programme for 2017–2018 and 2019–2020. However, inspectors found that this plan was not regularly reviewed to monitor progress against the set objectives. The hospital had however progressed other medication safety initiatives.

Similar to the previous inspection, Our Lady’s Hospital Navan did not have a clinical pharmacy service in place for inpatients, which was of concern to HIQA. The antimicrobial pharmacist who had been recruited since the last inspection did however review the medication records of inpatients on antimicrobials, and reviewed the medication records of all patients in the intensive care unit.

Medication reconciliation had been introduced two days a week in the emergency department, however only 18% of patients admitted to the hospital received this service. Medication reconciliation was not undertaken on discharge.

Our Lady’s Hospital Navan had developed a high-risk medication list adapted from literature and local incidents, with associated risk-reduction strategies in place which were relevant to the services provided by the hospital.

Incident reporting rates had increased, but there was still room for improvement in reporting among disciplines and areas with lower reporting rates, and in the analysis of incidents to support identification of trends for targeted improvement.

Since the previous inspection the hospital had not progressed the development of a formulary, and similar to findings at the previous inspection many medications related polices, procedure and guidelines viewed by inspectors were overdue for review.

Monitoring and evaluation had improved since the previous inspection in the areas of antimicrobial stewardship, nursing audits and safe prescribing metrics and this improvement should be sustained by the hospital.
Overall, hospital staff at department and management level were striving to promote medication safety, but many of the essential elements required to support medications safety were still absent, or only partially in place in the hospital.

This report should be shared with relevant staff at Our Lady’s Hospital Navan and the Ireland East Hospital Group to highlight the findings from the inspection, including what has been achieved to date and to foster collaboration in relation to opportunities for improvement.

The hospital should continue to work towards improving medication safety practices by addressing the findings of this report, and continuing the implement initiatives identified through its own monitoring of practices.
4. References


### 5. Appendices


<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 report and manage risk related to medication safety throughout the hospital.</td>
<td>Quality and Safety</td>
<td>3.1, 3.2, 3.3, 5.6, 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.

Reprinted with permission from ISMP Canada