Report of the announced inspection of medication safety at Midland Regional Hospital Portlaoise.

Date of announced inspection: 30 October 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 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 the Midland Regional Hospital Portlaoise ........................................... 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 ....................................................................................... 23

3. Summary and conclusion ............................................................................................... 24

4. References .................................................................................................................... 26

5. Appendices ..................................................................................................................... 33
   Appendix 1: Lines of enquiry and associated National Standards for Safer Better Healthcare.................................................................................................. 33
   Appendix 2: Hierarchy of effectiveness of risk-reduction strategies in medication safety ........................................................................................................... 34
   Appendix 3: National Coordinating Council for Medication Error Reporting and Prevention. Index for categorising medication errors ........................................ 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. 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.

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. 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. 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.

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’ in January 2018 which presented the findings from thirty-
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

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† 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 Midland Regional Hospital Portlaoise by Authorised Persons from HIQA; Dolores Dempsey Ryan and Emma Cooke. The inspection was carried out on 30 October 2019 between 09:00hrs and 16:40hrs.

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

- surgical ward
- operating theatre department.

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 interim quality and patient safety manager.
- Group two: the director of nursing, the director of midwifery and the general manager.

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

Information about the hospital

The Midland Regional Hospital Portlaoise is a model 3§ public acute hospital in the Dublin Midlands Hospital Group** providing acute, maternity and paediatric services with a co-located mental health services on site. The services include elective and emergency adult and children’s services on an inpatient, day and outpatient basis.

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§ Model 3 hospital: admits undifferentiated acute medical patients; provide 24 hour/7day week acute surgery, acute medications and critical care.

** The Dublin Midlands Hospital Group comprises seven hospitals – St. James’ Hospital, Tallaght University Hospital, Naas General Hospital, Midland Regional Hospital Portlaoise, Midland Regional Hospital Mullingar, Coombe Women and Infant’s University Hospital and St. Luke’s Radiation Oncology Network.
2. Findings at the Midland Regional Hospital Portlaoise

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

Hospitals should have governance arrangements in place to support the development, implementation and maintenance of a hospital-wide medication safety system.\textsuperscript{15,16}

The Midland Regional Hospital Portlaoise had a Drugs and Therapeutics Committee in line with best practice. The committee had responsibility for overseeing all processes relating to medication safety in the hospital and reported to the Weekly Management Operations Team on a weekly basis and to the Quality and Safety Executive Committee every quarter. The Weekly Management Operations Team also functioned as the Hospital Executive Management Team. Inspectors were informed that common membership from senior hospital management across the Drugs and Therapeutics Committee, the Quality and Safety Executive Committee and the Weekly Management Operations Team enabled both formal and informal reporting of medication safety issues. The Drugs and Therapeutics Committee was meeting in line with its terms of reference. Overall, corporate responsibility for oversight of medication safety within the hospital rested with the general manager.

In line with recommended practice,\textsuperscript{10,17} the hospital had a medication safety programme that included a medication safety strategy. The programme clearly set out the systems in place in the hospital to support clinical governance for medication safety, gathering of medication intelligence data, feedback on medication safety performance to staff, medication information systems available at point of decision making and education systems available to staff to support medication management.\textsuperscript{18} The medication safety programme included the hospital’s strategic plan for medication safety. The strategic plan outlined the hospital’s short term and long term strategic objectives for medication safety and it was supported with a medication safety programme action plan for 2019-2020. The Drugs and Therapeutics Committee had oversight of the medication safety programme action plan as it was an item for discussion at the committee meetings. Medication safety was also an item for discussion on the agenda of the Weekly Management Operations Team meetings.
Inspectors found on the day of inspection that the hospital was proactive in implementing quality improvement initiatives to meet its strategic objectives for medication safety and to address findings in the previous inspection report. These quality improvements included the implementation of risk reduction strategies for high risk medications, implementation of medication reconciliation for patients on admission, the development of a formulary list approved by the Drugs and Therapeutics Committee and the introduction of a medication application software system for clinical staff.

Overall, inspectors found that in the Midland Regional Hospital Portlaoise medication safety was prioritised at organisational level with clear leadership from the chief pharmacist and the support of the Senior Management Team, the Drugs and Therapeutics Committee and staff at the hospital.

### 2.2 Risk management

Medication-related risks requiring additional control measures were documented on the hospital’s corporate risk register. Three medication safety-related risks were identified; risk rated and regularly reviewed on the risk register at the Quality and Safety Executive Meetings.

The hospital had a system in place for reporting medication safety incidents. Medication safety incidents†† that occurred in the hospital were reported to the State Claims Agency using the National Incident Management System‡‡ (NIMS). In 2016, the hospital had reported 237 medication safety incidents and the number reported dropped to 206 in 2017 with a small rise to 213 medication safety incidents reported in 2018 (Figure 1).

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†† An incident is an unplanned, unexpected or uncontrolled occurrence which causes (or has the potential to cause) injury, ill-health, and or damage. An incident can be a harmful incident (adverse event), a no harm incident, a near miss, dangerous occurrence or complaint.

‡‡ 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 majority of medication safety incidents were reported by clinical pharmacists with some reported by nursing staff. Inspectors were informed that the level of medication safety incident reporting by medical staff was very low and this was identified as area for improvement.

One factor which increases incident reporting is the timely provision of feedback to staff on medication incidents reported and the actions required to avert future risks.\textsuperscript{21,22} Overall, staff in the clinical areas visited who spoke with inspectors showed a general awareness on improvement measures implemented on learning gained from analysis of medication safety incidents, but were unaware about the overall number of medication safety incidents reported in their clinical area each month or on a quarterly basis.

\textbf{Analysis of incidents}

Medication safety incidents were categorised using the NIMS system. Medication safety incident reports were analysed by the chief pharmacist with the quality and patient safety manager on a quarterly basis. The Quality and Safety Executive Committee provided oversight of risk management processes including medication safety incidents.

The reporting of incidents is of little value unless the data collected is analysed to identify trends or patterns in relation to risk and the resulting recommendations for improvement are shared with frontline staff.\textsuperscript{22} A medication incident report was produced every quarter and an overall report was produced annually for the Drugs and Therapeutics Committee and the Quality and Safety Executive Committee meetings. Inspectors were provided with a copy of a medication incident report for 2014 to 2018. This report outlined annual trends for:

- the number of medication safety incidents which occurred each year
- the severity of harm associated with medication safety incidents
- category of staff reporting incidents
- the area reporting the incident
- top five medication class of incidents based on the anatomical therapeutic chemical classification system (ATC).\textsuperscript{55}

Trending of medication safety incidents showed that the highest number of medication related incidents occurred with medications prescribed for the nervous system and the cardiovascular system. The hospital responded by adopting a proactive approach and implemented high risk reduction strategies in response to

\textsuperscript{55} ATC: The Anatomical Therapeutic Chemical (ATC) Classification System is a drug classification system that classifies the active ingredients of drugs according to the organ or system on which they act and their therapeutic, pharmacological and chemical properties.
recurrent errors with for example, direct oral anticoagulants (DOAC*** and anti-parkinson’s medications. The hospital introduced a DOAC checklist sticker to be completed by a clinical pharmacist and also revised the medication prescription and administration record to include a specific pink coloured section to enhance anticoagulant prescribing. In addition, the clinical pharmacist completed medication reconciliation for patients admitted with parkinson’s disease and advised nursing staff on the administration times for anti-parkinson’s medications to ensure that these patients received their medications on time.

**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**

- The over reliance on pharmacy staff to report medication safety incidents needs to be addressed. The hospital must continue to promote incident reporting among all clinical staff, within a just culture,‡‡‡ to strengthen reporting of medication safety incidents, so that safety surveillance is improved.

### 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).

The Midland Regional Hospital Portlaoise had developed a high-risk medications list, using international literature and locally identified high-risk medications. The hospital had implemented a combination of associated risk-reduction strategies which were observed by inspectors in practice. Staff who spoke with inspectors had an awareness of the high-risk medications available in their clinical areas and the risk-reduction strategies in place.

*** Direct oral anticoagulants (DOACs) are drugs which prevent harmful blood clots forming in your blood vessels.

††† 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 framework of a just culture ensures balanced accountability for both individuals and the organisation responsible for designing and improving systems in the workplace.

§§§ 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.

**** 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.
The following sample of high-risk medications was reviewed in detail during this inspection to identify the risk-reduction strategies in place:

- anticoagulants††††
- concentrated potassium chloride
- medication management during the perioperative period.

The hospital had a combination of risk-reduction strategies in place to mitigate against the risks associated with anticoagulants such as:

- direct oral anticoagulants†††† (DOACs) were patient specifically dispensed and not stocked on wards
- the clinical pharmacist used a checklist to review the indication for DOAC the dose, interaction risk with other medications and checked for risk of anticoagulation duplication. This information was recorded on a DOAC checklist sticker
- the clinical pharmacist provided counselling to patients on DOACs
- a warning anticoagulant red label was applied in the pharmacy department to DOACs to alert clinical staff to ensure that these drugs were not given with other antithrombotic medications
- the hospital had a procedure for pharmacists relating to their role in reviewing and documenting their review of DOAC in-patient prescriptions
- the medication record§§§§ was updated with a specific pink coloured section to enhance anticoagulant prescribing
- unfractioned heparin was not routinely stored on the wards
- low molecular weight heparins (LMWH)***** were stored in the ward, but segregated from other medications.

Concentrated potassium chloride

Inspectors viewed a number of risk-reduction strategies to mitigate against the risks associated with concentrated potassium chloride. These risk reduction strategies included the following:

- two strengths of pre-mixed potassium chloride solutions were available and dispensed by pharmacy to clinical areas

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†††† Anticoagulants: are commonly referred to as blood thinners that prevent or treat blood clots, but these medications 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.

‡‡‡‡ Direct oral anticoagulants: Options for anticoagulation have been expanded recently with the introduction of new anticoagulants called direct oral anticoagulants.

§§§§ The medication record is the medication prescription and administration record, drug kardex or drug chart.

***** Heparin is an anticoagulant specifically used in the initial treatment and prevention of deep vein thrombosis, pulmonary embolism, and arterial thromboembolism.
there was rationalised storage of pre-mixed potassium chloride observed in the ward area separated from other intravenous solutions
- concentrated potassium chloride ampoules were stored, ordered and dispensed as a control drug
- potassium vials had a written warning red label that stated ‘warning high risk/alert, medication must be diluted’
- potassium vials had a red coloured sticker stating that this product contains potassium
- intravenous monographs for the administration of potassium were available on the wards
- the hospital had a policy on the safe use of intravenous potassium.

**Medication management during the perioperative period**

A hospital’s operating theatre presents a unique situation with the use of multiple high-risk medications, high patient throughput and complex procedures. A diverse range of medications are used which have the potential for a serious adverse event if administered incorrectly. Therefore, the perioperative period is a high-risk situation in relation to medication safety.

Examples of risk-reduction strategies in place to mitigate against the risks of medications used within the theatre department are outlined below:

- international colour-coded labels were used
- there was rationalised storage of high-risk medications
- colour-coded trays aligned with international labeling systems were used for identifying and segregating drawn up emergency medications and local anaesthetic injections
- warning ‘paralyzing agent’ stickers were applied to neuromuscular blocking agents which were segregated from other medications.

Inspectors were informed that emergency medications required for emergency caesarean sections were drawn up by the anaesthesiologist at the start of each day, labelled and stored in a separate tray in a fridge and discarded after 24-hours. It was also explained to inspectors that these medications could potentially be administered by anaesthesiologist who had not necessarily prepared the emergency medications. Inspectors observed that some medications which had been prepared in advance were insufficiently labelled. Best practice recommends that individual syringes of medications drawn up in advance should be clearly labelled with a minimum of the medicine name and dose or concentration, the date and time of preparation and the initials or signature of the person who prepared it. The hospital should risk-assess the practice of drawing up

††††† Neuromuscular blocking agents provide skeletal muscle relaxation during surgery.
individual syringes of medications in advance and the labelling of these medications to assure themselves that they are following best practice.\textsuperscript{28,29}

Inspectors were informed that a double checking system was not in place for anaesthetic medications, but all controlled drugs were double checked in accordance with legislative requirements.\textsuperscript{30, 31, 32,33}

There was evidence of good communication regarding medications administered at transitions of care throughout the perioperative patient pathway.

**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:

The Midland Regional Hospital Portlaoise had a number of high-leverage risk-reduction strategies in place for insulin. The hospital had a policy on safe prescribing and administration of high strength insulin. The hospital also had a policy on the storage, labelling and disposal of insulin and glucagon-like peptide 1 receptor agonists at ward level. Inspectors found that insulins not in use were stored in a temperature controlled fridge with a high-risk and blank flag label.\textsuperscript{34} High strength insulins were dispensed on a named patient basis by the pharmacy department labelled with the patient’s addressograph. Insulin was prescribing in a dedicated section of the medication prescribing and administration record. Inspectors found that ‘iu’ was recorded on a medication prescribing and administration record viewed following the administration of insulin. Best practice guidelines recommends that abbreviation ‘u’ or ‘iu’ should not be used for units.\textsuperscript{35,36} The insulin section of the medication prescribing and administration record should be reviewed following this inspection to ensure that the design of the record supports best practice guidelines for insulin prescribing and administration.

The hospital had developed a local list of sound-alike look-alike medications (SALADS)\textsuperscript{5555} using international literature and locally identified high-risk medications. This list was seen displayed in clinical rooms visited by inspectors. The hospital had developed a procedure to support the implementation of risk

\textsuperscript{5555} SALADS are Sound-alike look-alike drugs’ or ‘Look- alike sound-alike’ (LASA). The existence of similar drug or medications 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.
reduction strategies for SALADS that included a coloured high alert drug SALADS sticker.

Intravenous paracetamol was used for patients with moderate pain or fever where the oral route was not clinically indicated. Administration guidelines for intravenous paracetamol were in place that incorporated guidance on dose adjustments required for patients weighing less than 50 kilograms.

Overall, the Midland Regional Hospital Portlaoise had implemented a combination of low, medium and higher-leverage risk-reduction strategies for high-risk medications which were observed by inspectors in practice. Staff who spoke with inspectors had a strong awareness of the high-risk medications available in their clinical areas and the risk-reduction strategies in place.

**Opportunities for improvement**

- The insulin section of the medication prescribing and administration record should be reviewed to ensure that the design of the record supports best practice guidelines for insulin prescribing and administration.

- The hospital should conduct a risk assessment into the practice of drawing up individual syringes of medications in advance of use including labelling and administration to ensure that practices are safe and in line with current best practice.

**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.37, 38

**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 394 people discharged from the Midlands Regional Hospital Portlaoise during the month of May 2019, 171 people completed the survey, achieving a response rate of 46%.39 Two questions related directly to medication in the National Inpatient Experience Survey. The scores for the Midlands Regional

***** 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.
Hospital Portlaoise 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>Midland Regional Hospital Portlaoise score</th>
<th>National score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q44. Did a member of staff explain the purpose of the medication you were to take at home in a way you could understand?</td>
<td>2019</td>
<td>8.0</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>8.1</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>4.8</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td>2018</td>
<td>4.8</td>
<td>5.2</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>5.8</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Table 1: Comparison between the Midland Regional Hospital Portlaoise and national scores for Questions 44 and 45 of the National Inpatient Experience Survey 2017 to 2019.

In 2019, the response for Question 44 received an overall score§§§§§§ of 8.0 which was in line with the national average score. Question 45 received an overall score of 4.8 which was slighter lower than the national score of 5.3 and this score showed no improvement from 4.8 in 2018.

The hospital identified patient discharge as an area for improvement and had set up a working group to support change and implement a discharge envelope initiative to improve the information provided to patients on discharge or transfer. This included providing patients with printed or written information about what to do or not to do with medications on leaving the hospital. The hospital needs to continue to develop quality improvement initiatives to further support patient’s safer management of their medications.

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

‡‡‡‡‡‡ National Inpatient Experience Survey was known as the National Patient Experience Survey in 2017 and 2018.

§§§§§§ Score out of 10 was given for each question belonging to a stage of care or a stage as whole. A score of 0 indicates a very negative experience and a score of 10 indicates a very positive experience.
**Patient information**

Inspectors were informed that patient information on medications was provided by doctors, nurses and pharmacists. Clinical pharmacists provided counselling to patients on direct oral anticoagulants. Inspectors were provided with information booklets relating to anticoagulation, heart medications and antibiotics that were provided to patients on discharge as required. Inspectors were also informed that clinical nurse specialists played a large role in patient education in specialist areas such as diabetes.

**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.\(^40, 41, 42\)

Medication reconciliation was undertaken by clinical pharmacists in the surgical ward, medical ward and coronary care unit. Clinical pharmacists gathered the pre-admission medication list using two sources of information, as necessary for accuracy.\(^41\) The information was recorded on the medication reconciliation section of the medication prescribing and administration record. The hospital had developed a procedure on the taking of medication histories and medication reconciliation documentation. An audit carried out in quarter one and two of 2017 indicated that 1253 medication reconciliations were completed. The number of medication reconciliations completed in quarter one and two in 2018 were slightly less due to a reduction in clinical pharmacy resources.

The hospital had undertaken medication reconciliation on discharge prescriptions as it was identified on the hospital risk register as an area of potential harm to patients. Sixty five patients’ discharge prescriptions were reviewed. The results indicated that the average number of errors on the discharge prescriptions was 6.6 per prescription. As this was a pilot project, inspectors were informed that medication reconciliation on discharge was on hold due to a lack of clinical pharmacy resources.

Inspectors were informed that the hospital staff encouraged patients to record their medication on the ‘My Medication List’ in line with the ‘Know, Check, Ask campaign’. \(^43, 44\)

\(^{40}\) The campaign encourages people who take regular medications, and those assisting them, to: know your medications and keep a list, bringing the list to appointments and if admitted to hospital. Check that you are using the right medicine the right way and ask your healthcare professional if you’re unsure.
**Systems to support medication safety and optimisation**

Some systems were in place to support medication safety and optimisation in relation to the:

- prescribing and administration of crushed medications
- purple oral syringes were in use for liquid medications
- red apron for medication rounds
- the hospital had an up to date policy and procedure for safe administration of medication by oral route for adult and paediatric patients.

Patient weight measurements are important for medications that require an individual weight-based dose. Patient weights and allergies were documented on medication prescribing and administration record reviewed by inspectors during the inspection.

**Opportunities for improvement**

- The hospital should continue to implement medication reconciliation for patients on admission, and progress towards the re-introduction of medication reconciliation to include patients on discharge.

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

International studies support the role of a clinical pharmacy service in hospital wards in preventing adverse drug events. There were 6 whole time equivalent approved pharmacist positions and 4 approved positions employed by the hospital providing cover Monday to Friday. The hospital also had 5.45 pharmacy technicians. On the day of inspection, there were five whole time equivalent positions and one temporary pharmacy position.

The hospital had a clinical pharmacy service in adult wards and the paediatric ward allied to an antimicrobial pharmacist service which covered all adult wards. While there was no dedicated pharmacy service for the emergency department, the coronary care unit and acute medical assessment unit (AMAU), clinical pharmacists responded to queries. Inspectors were informed that the pharmacy department used an automatic query items list to prioritise items for review such as methotrexate, direct oral anticoagulants and parkinson’s medications. The clinical pharmacist was also very accessible to staff for advice and support by phone.

Clinical pharmacy service describes the activity of pharmacy teams in ward and clinic settings; ‘core’ activities may include: prescription monitoring, prescribing advice, optimising therapeutic use of medications, adverse drug reaction detection and prevention, patient education and counselling.
The hospital had a list of medications approved for use in the hospital, also referred to as a formulary. 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 medications which was under the governance of the Drugs and Therapeutic Committee. Consultants requesting new medications for addition to the formulary had to complete a new drug application form.

2.6 Use of information

Hospitals should support clinical staff in achieving safe and effective medication use through the availability of up-to-date evidence-based information and decision support tools for medications.

The hospital had locally adapted intravenous administration guidelines from another hospital within their hospital group. The hospital had also developed a medicines application software system for the Midland Regional Hospital Portlaoise which was approved for use by the Drugs and Therapeutics Committee.

Inspectors found that clinical staff had access to up-to-date information at the point of care. Medication information was accessible to staff on the pharmacy information folder on computers, with some information available in hard copy such as:

- intravenous medication administration monographs
- antimicrobial guide
- British National Formulary
- medicines smart phone application
- high risk medication list with storage specific processes included on the list
- SALAD list
- use of the paediatric service nationally approved protocols and applications obtained through the National Network for Paediatric Services
- policies, procedure and guidelines on high risk medications
- the hospital had adopted an Adult Medicines Guide from a model 4 hospital within the hospital group and had computer desktop access to it via the model 4 hospital’s external server. This Adult Medicines Guide was adapted and approved for use in the Midland Regional Hospital, Portlaoise Drugs and Therapeutics Committee. This is an example of good collaboration and sharing between hospitals within the Dublin Midlands Hospital Group.

Formulary: a managed list of preferred medications that have been approved by the hospital’s Drugs and Therapeutics Committee for use at the hospital.
It is recommended, by both the Health Service Executive\textsuperscript{55} and the National Clinical Effectiveness Committee\textsuperscript{56} that policies, procedures and guidelines are reviewed and updated every three years. Policies, procedure and guidelines viewed by inspectors during the inspection were up to date. The hospital had a list of medication policies, procedures and guidelines that indicated that some were due for review.

\section*{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.\textsuperscript{15}

Evidence of monitoring and evaluation of medication safety provided to inspectors for the past two years consisted of

- concentrated potassium ampoule consumption audit 2014-2018
- medication reconciliation audit on admission
- medication reconciliation audit on discharge
- audit on the storage, labeling and disposal of insulin and GLP-1 agonist\textsuperscript{555555} products at ward level 2017
- nursing and midwifery quality care metrics\textsuperscript{********57}
- audit of red apron initiative\textsuperscript{††††††††}
- antimicrobial consumption audit.

Inspectors found that while there was evidence that medication audits were completed by clinical pharmacists and nursing staff, there was little evidence that medication audits were completed by medical staff. Inspectors were informed that the hospital had recently employed an audit facilitator and planned to set up a centrally controlled audit system. The audit facilitator had introduced a clinical audit application form and was working to stream-line audit processes in the hospital. The Quality and Safety Executive Committee provided oversight of clinical audit.

Dissemination of audit results is essential so that the clinical workforce is informed of the areas that need improvement, and also to motivate them to change practice and participate in improvement activities\textsuperscript{15} Audit results were discussed at the Quality and Safety Executive Committee and at various forums including pharmacy department and nurse committee meetings.

\textsuperscript{555555} GLP-1 receptor agonist medications, also called incretin mimetics, are a type of incretin-based medicine for type 2 diabetes.

\textsuperscript{********} Metrics are parameters or measures of quantitative assessment used for measurement and comparison or to track performance.

\textsuperscript{††††††††} Red do not disturb aprons: were worn by nurses to reduce interruptions during medication administration as interruptions during medication administration rounds can contribute to medications errors.
Nursing and midwifery quality care metrics were monitored on a monthly basis and included a number of elements focused on medication management.

**Opportunities for improvement**

- The hospital should proceed with its plan to set up a central controlled audit system to monitor the use and safety of medication.

**2.8 Education and training**

Staff education can effectively augment error prevention when combined with other strategies that strengthen the medication-use system.58

The Midland Regional Hospital Portlaoise had a structured induction programme for doctors and nurses which included medication safety education. Non-consultant hospital doctors were provided with training on writing prescriptions and reviewing prescriptions. Nurses completed an intravenous study day with associated competency assessment as part of their induction programme and also completed the HSELnD++ medication management module every two years.

The hospital had a procedure for induction of new staff at the pharmacy department. Clinical pharmacists provided informal medication management training on the wards as required.

To promote medication safety, the hospital had run a Medication Safety Awareness Day in May 2019 and staff were also asked to complete a medication safety quiz relating to high risk medications.

**Opportunity for improvement**

- The hospital should continue to ensure that professionals have the necessary competencies to deliver high-quality medication safety through induction and ongoing training.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.

HIQA found that medication safety was being actively progressed at the Midland Regional Hospital Portlaoise. Medication safety was prioritised with clear leadership from the Chief Pharmacist and the support of the Senior Management Team and staff at the hospital.

In line with recommended practice, the hospital had a medication safety programme that included a medication safety strategy. The hospital also had a formulary and had a system in place for the approval of new medications which was under the governance of the Drugs and Therapeutic Committee.

The Midland Regional Hospital Portlaoise had established systems in place for high-risk medications relevant to the services provided. These included a local list of high risk medications detailing relevant risk reduction strategies in place including labelling of high risk medications. Inspectors found that the hospital needs to strengthen its practices around the labelling of individual syringes when medications are drawn up in advance in one clinical area visited in line with best practice.

The hospital had a clinical pharmacy service in adult wards and the paediatric ward allied to an antimicrobial pharmacist service which covered all adult wards. The hospital had implemented medication reconciliation for patients on admission, and should progress with medication reconciliation to include patients on discharge.

The hospital had a system in place for reporting medication safety incidents. However, inspectors found that there was an over reliance on pharmacy staff to report medication safety. This needs to be addressed as the reporting of medication safety incidents to enhance medication safety is the responsibility of all clinical staff and should not be contingent on one discipline.

The hospital had some ongoing monitoring and evaluation undertaken for medication safety that included audits and nursing and midwifery quality care metrics. Inspectors were informed that the hospital had recently employed an
audit facilitator and planned to set up a centrally control audit system for the hospital and review audit processes.

The hospital had a number of medication information sources available which were accessible to staff. The Midland Regional Hospital Portlaoise had a structured induction programme for doctors and nurses which included medication safety education.

The hospital should continue to work towards improving medication safety practices by addressing the findings of this report, and also continue to progress the implementation of initiatives identified through its own monitoring of medication safety practices.

This report should be shared with relevant staff at the Midland Regional Hospital Portlaoise and the Dublin Midlands Hospital 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 report 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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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.)