Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Report of the announced inspection of medication safety at the Midland Regional Hospital Tullamore, County Offaly.

Date of announced inspection:

13 March 2017

About the Health Information and Quality Authority

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

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

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

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

Regulation — Registering and inspecting designated centres.

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

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

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

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

Table of Contents

1. Introduction

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

Medication related events were the third most common type of adverse event recorded in the Irish National Adverse Events Study.[1] Medication safety has also been identified internationally as a key focus for improvement in all healthcare settings and it is estimated that on average, at least one medication error per hospital patient occurs each day.[2]

HIQA's medication safety monitoring programme, which commenced in 2016, aims to examine and positively influence the adoption and implementation of evidence-based practice in public acute hospitals around medication safety. HIQA monitors medication safety against the *National Standards for Safer Better Healthcare* [3] to determine if hospitals have effective arrangements in place to protect patients from harm related to medication use.

An expert advisory group was formed to assist with the development of this medication safety monitoring programme. The advisory group membership included patient representation, alongside members with relevant expertise from across the Irish health service. Specific lines of enquiry were developed to facilitate medication safety monitoring. The lines of enquiry which are aligned to HIQA's *National Standards for Safer Better Healthcare* are included in Appendix 1 of this report. Further information can be found in a *Guide to the Health Information and Quality Authority's Medication Safety Monitoring Programme in Public Acute Hospitals 2016* [4] which is available on HIQA's website: www.hiqa.ie

An announced medication safety inspection was carried out at Midland Regional Hospital Tullamore by Authorised Persons from HIQA; Kathryn Hanly, Dolores Dempsey Ryan and Kay Sugrue. The inspection was carried out on 13 March 2017 between 10:30hrs and 17:00hrs. Interviews were held in the hospital with the following groups of managers and clinical staff:

- Group one: the Chairperson of the Drugs and Therapeutics Committee, the Chief Pharmacist, the Chief II Pharmacist (Clinical Pharmacy/ Medication Safety) and the Head of Risk Management.
- Group two: the Hospital Manager, the Clinical Director and the Director of Nursing.

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

- Surgical Ward 1
- Medical Ward 2

In addition a survey was conducted among outpatients in the Outpatient's Department.

HIQA would like to acknowledge the cooperation of staff who facilitated and contributed to this announced inspection, and the patients in the hospital's Outpatient Department who completed an anonymised questionnaire in relation to prescribed medications.

2. Findings at Midland Regional Hospital Tullamore

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

2.1 Governance and risk management

Lines of enquiry:

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

The Midland Regional Hospital, Tullamore had a well established Pharmacy and Therapeutics Committee. The Committee was chaired by a medical consultant. This Committee had recently updated its terms of reference that outlined the objectives, membership, frequency of meetings and reporting relationships. The primary objective of the committee was to ensure rational and appropriate drug therapy and aimed to meet every two months.

Formalised governance arrangements ensure that there are clear lines of accountability in place at individual, team and service level so that healthcare professionals, managerial staff and everyone working in the service are aware of their responsibilities and accountability.[3] The hospital's organogram, provided to HIQA, showed that the Pharmacy and Therapeutics Committee had a dual reporting structure whereby they reported into the Hospital Management Team and reported via the Pharmacy Department into the Clinical Governance Committee. This organogram did not show a reporting structure between the Clinical Risk, Quality and Patient Safety Committee, the Clinical Governance Committee and the Hospital Management Team.

On the day of inspection, HIQA inspectors sought clarification regarding the formalised governance structure in place as there was a lack of clarity regarding the reporting structures. In response to the request for clarity, the hospital revised the organogram to clearly show the existing reporting relationships between these committees during the course of the inspection (appendix 2). The hospital needs to assure itself that this dual reporting relationship does not create confusion, and that there are reporting lines and accountability structures in line with the National Standards.[3]

Inspectors were provided with copies of the minutes of the last five Pharmacy and Therapeutics Committee meetings from February 2016 to February 2017.

Notwithstanding some identified confusion in describing reporting relationships at the hospital, HIQA found evidence that this Committee had communicated with the Hospital Management Team regarding medications and finance, and with the Clinical Governance Committee regarding medication incidents, a medication safety review report and medication policies. The Antimicrobial Pharmacist provided regular feedback to the Pharmacy and Therapeutics Committee on antimicrobial stewardship activities.

The Pharmacy and Therapeutics Committee had oversight of the medicines management system within the hospital and was multidisciplinary to reflect the fact that medicines management was the responsibility of a number of clinical professional groupings.[5] The Committee included clinicians, pharmacists, nurses, the microbiologist, hospital management, and other health care professionals who participate in the medication-use process. [6] Other specialists or disciplines such as the community pharmacist were invited to meetings as required. A review of the minutes of the Pharmacy and Therapeutics Committee showed that attendance at meetings was variable. While it was clear to HIQA that the Pharmacy and Therapeutics Committee provided active governance oversight of medication usage practice, the hospital should revisit the membership of the committee with the aim of ensuring greater, more consistent involvement from all staff including the community pharmacist as the hospital reported that community medication practices could influence drug prescribing in the hospital.

The Pharmacy and Therapeutics Committee evaluated the clinical use of medicines, administration of clinical trial medications, developed the policies for managing medicine use, and managed the formulary* system. Mechanisms were in place to communicate with healthcare professionals about all aspects of the formulary system. Documentation reviewed during the course of the inspection indicated that amendments to the formulary were considered at the Pharmacy and Therapeutics Committee meetings. While the Pharmacy and Therapeutics Committee had not evaluated its effectiveness, it was reported that this Committee planned to submit an annual report going forward to both the Clinical Governance and the Hospital Management Committees.

Medication safety was coordinated by the Chief Pharmacist with the support of the Pharmacy and Therapeutics Committee, the Senior Management Team, the Medication Safety Committee and healthcare staff at the hospital.

The hospital had recently established a Medication Safety Committee in January 2016 which was chaired by a specialist registrar. It reported into the Pharmacy and Therapeutics Committee. It also reported into the Complaints, Incidents and Risk

* A formulary is a hospital's approved list of medicines that staff can use as a reference document to ensure safe and cost-effective prescribing.

Group, which, in turn reported into the Clinical Risk, Quality and Patient Safety Committee. This Medication Safety Committee had met seven times between January 2016 and February 2017 and planned to meet monthly in 2017. While the Medication Safety Committee did not work towards the implementation of a formalised medication safety strategy, there was evidence that a medication safety agenda was being actively progressed at the hospital. For example, this Committee had a quality improvement action plan detailing the responsible person for each action, due dates and competition dates for each action. The hospital should look to further progress its significant work in this area by devising a formalised medication safety strategy with clearly defined objectives. In the absence of national guidance in this area, international guidelines[7] which outline best practice in relation to medication safety strategic planning and quality improvement should be considered.

The hospital had an established system for reporting and addressing medication errors and near misses. This system was supported by two policies, one policy on incident reporting for the pharmacy department and a second policy on medication incidents, near misses and adverse drug reactions for healthcare staff. Medication incident reports were produced every other month and medication incidents and near misses were tracked and trended to assess progress and to identify emergent medication safety concerns.

The rate of medication safety incident reporting in the hospital had increased significantly in recent years. This reflects the emphasis placed on patient safety by the Pharmacy Department and the willingness of front-line staff to provide information that is ultimately intended to reduce the risks associated with medication use. Medication incidents reported through the pharmacy information system indicated that 2,336 medication incidents were reported in 2016 and approximately 100 incidents were reported by nursing staff.

The hospital reported that 94% of medication incidents resulted in no harm to the patient. A small number of these incidents which were categorised as more severe in nature were reported to the Clinical Risk Co-ordinator using the National Incident Management System (NIMS) incident form and recorded on the NIMS system. HIQA note that notwithstanding this positive trend in reporting, the majority of reports were submitted by clinical pharmacists and nursing staff with limited evidence available to suggest that medical staff were reporting medications incidents. Therefore, the culture of reporting medication incidents needs to be broadened out to include other healthcare staff so that safety surveillance is improved, learning is shared, and safety culture is promoted and enhanced across the organisation.

Open disclosure occurs when staff in the health and social care service communicate with patients in an open and honest manner when things go wrong with patient care.[8,9] Inspectors were informed that the hospital had a process in place to

promptly inform patients when medication-related incidents occurred. This was confirmed by ward staff.

Issues which were considered to potentially compromise the safe administration of medication were included on the pharmacy department's risk register and escalated where necessary to the hospital risk register. A copy of the risk register reviewed by HIQA during this inspection indicated that the hospital's risks register required review and that risk control measures need to be updated and re-evaluated regularly. For example, risks in relation to the administration time of anticoagulants[†], had been placed on the hospital risk register in April 2016. To mitigate this risk, the medication prescription and administration chart was revised to facilitate standardized administration times of anticoagulants, in May 2016. However, the information relating to the administration times of anticoagulants had not being disseminated to all healthcare staff to at the time of the inspection in March 2017.

The hospital identified a list of high alert medications that present a heightened risk of causing significant patient harm if not used correctly. These medications were identified from international evidence and following the analysis of medication incidents and near misses reported. Inspectors viewed notification posters display in clinical areas with information on high risk, high alert medications and a list of sound-alike and look- alike drugs (SALADs). In addition, the hospital had a policy on the labelling of high risk, high alert and SALAD medications to assist in the safe use of these drugs. High risk, high alert drugs and SALAD medications can cause significant patient harm when they are used in error.

Medication alerts were communicated by the Chief Pharmacist to medical staff and to senior nurse managers. Senior nurse managers communicated medical alerts to all nursing staff. This was confirmed by medical staff.

2.2 Audit and evaluation

Line of enquiry:

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

Audit represents a key component of all effective clinical governance programmes. It was reported that the hospital conducted regular audits to evaluate the safety of medication management systems. Documentation reviewed showed that a number of medication safety-related audits had been undertaken by clinical staff at the hospital which included the following:

- audit of prescriptions completed in the Emergency Department

[†] Medications used to treat or prevent blood clots

- audit of the nurse prescribing database
- prophylaxis audit[¥] of the Health Service Executive (HSE) Venous Thromboembolism (VTE) quality improvement project
- nursing metrics
- audit of patient identification bracelets
- medication audit to review medication practice on the wards relating to compliance with national and hospital's policies.

Medication safety incident reports and trend analysis influenced audit practice within the hospital. For example, the Pharmacy and Therapeutics Committee determined the audits from incident report findings and planned to audit antibiotic prophylaxis in the management of orthopaedic patients. In addition, the hospital had implemented a quality improvement project to audit antibiotic prescribing for medical patients on a weekly basis, and noted a positive improvement from 55% to 75% with compliance with antibiotic prescribing when compared to hospital empiric prescribing guidelines.

Nursing Quality Care-Metrics[‡] were monitored across the hospital to review practice around some aspects of medication storage and administration. Inspectors viewed the Nursing Quality Care-Metrics findings and noted that the results relating to medication storage and custody were good. However, more improvement was required with regard to medication prescribing.

Inspectors viewed a medication audit report carried out in March 2017. This was an observational audit of a medication round and included observing

- if patient's details were checked when administering medications
- if the allergy status was completed
- the number of interruptions occurring during the medication round
- the drug trolley locked if unattended
- the competition of medication management training
- the learning resources available to staff on the ward.

A comprehensive audit report was completed and it identified areas of good practice and made recommendations. In addition, the results of these audits were communicated and disseminated hospital wide and included the Clinical Governance Committee and the Pharmacy and Therapeutics Committee.

[‡] Metrics are parameters or measures of quantitative assessment used for measurement and comparison or to track performance.

[¥] A prophylactic is a medication or a treatment designed and used to prevent a disease from occurring.

Overall, inspectors concluded that the hospital had conducted a number of audits relating to medication management, but needs to implement a structured approach to auditing medication aligned to a formalised medication safety strategy.

2.3 Medication safety support structures and initiatives

Line of enquiry:

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

The hospital had implemented initiatives aimed at optimising medication safety. For example, interruptions during medication administration rounds are thought to be a prominent causative factor of medication errors.[18] In response the hospital had introduced the red apron initiative where red "do not disturb" tabards were worn by nursing staff while administering medications. Inspectors viewed the recent audit results March 2017 relating to the use of the red apron, and noted that there was good compliance with this quality improvement initiative.

Additional practices to enhance medication safety in the hospital were identified during this inspection These included:

- Redesign of a medication prescription drug kardex with a section designated to antimicrobials and a section for venous thromboembolism risk assessment.
- The development of an e-learning programme relating to the new prescription drug kardex, which the hospital planned to implement for medical and nursing staff.
- Introduction of a medication information folder with up to date drug monographs and protocols.
- Access to electronic information system with information on drug monographs, medication policies and medication information leaflets.
- Piloting the use of a drug prescription using an electronic system for patients on discharge in collaboration with a community pharmacy.
- Pharmacy database designed to record medication incidents.
- Introduction of medication reconciliation on admission.

A clinical pharmacy service was provided at the hospital through a team-based approach with a clinical pharmacist assigned to an identified hospital consultant's team. In addition, the hospital had aligned a pharmacist to the Emergency Department to review the medication prescription and administration chart and reduce medication incidents, for patients who had been deemed to be admitted and who were waiting a bed on a ward elsewhere in the hospital. There are currently no

agreed national standards outlining requirements for the provision of clinical pharmacy services in Irish hospitals. However, international studies support the role of clinical pharmacists in hospitals in preventing adverse medication events.[10,11,12,13,14,15]

A formal medication reconciliation[§] service was provided by the clinical pharmacists to all patients on admission in line with recommended practice.[16,17,18,19] However, formalised medication reconciliation service was not provided at patient discharge. Medication reconciliation at time of admission is a systematic process conducted by an appropriately trained individual, to obtain an accurate and complete list of all medications that a patient was taking prior to admission.[19] Inspectors were informed that patient's medications were verified by a clinical pharmacist on admission using two information sources, one of which was always the patient or their carer and these were then compared to the patient's hospital medication prescription and administration chart and communication was made if required with the community pharmacist. Inspectors viewed a patient's medication prescription and administration chart on the day of inspection, and noted that it had a medication communication section where the clinical pharmacist had recorded queries relating to drugs prescribed for discussion with the prescriber.

2.4 Person-centred care

Line of enquiry:

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

The hospital had a system in place to support the provision of patient information and education in relation to medication. Inspectors were informed that clinical nurse specialists offered counselling to all patients on medications relevant to their speciality. For example, a diabetic clinical nurse specialist provided education on drugs prescribed for patients with diabetes. On one of the wards visited, inspectors observed a sticker placed as a symbol on a white board to identify patients who required education by a clinical nurse specialist. Where the clinical nurse specialist was not available, patient information relating to medications was provided by nursing staff on the ward and on occasions by the clinical pharmacist.

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. Efforts should be made to further improve communication with patients about their medications. As part of this inspection, HIQA asked a small

[§] Medicines reconciliation is a formal, systematic process for obtaining a current and accurate list of medicines a patient was taking when admitted to hospital, known as a best possible medication history, and reconciling this history against the patient's medicines prescribed at admission, transfer and discharge on the medication chart.

sample of patients attending the Outpatient's Department to complete an anonymised questionnaire in relation to prescribed medications. The questionnaire was completed by 13 people who had been inpatients in the Midland Regional Hospital Tullamore within the past year and who were prescribed regular medications. Of the 13 people surveyed:

- 8 patients said that a staff member had explained the purpose of new medication in a way that they could understand.
- 5 patients said that a staff member told them about possible medication side effects to look out for following discharge home.
- 8 patients said they received instruction on how to take newly prescribed medications at home.

It is acknowledged that this was a small sample of patients who completed the anonymised questionnaire in relation to prescribed medications at the outpatient's department and therefore was not representative of all recently discharged patients taking prescribed medication. This information did however, provide some information about outpatients understanding and could be expanded upon and used to identify opportunities for improvement.[20,22]

Inspectors were told that the hospital had conducted regular patient surveys, but had not included questions regarding information provided to patients about their medications. This should be a key area of focus for improvement by the hospital following this inspection. A key feature of a medication safety programme is the inclusion of patients' experience of the medication system in the hospital and uses their views to inform and direct current and future quality improvements in the area of medication safety. [3]

2.5 Policies procedures and guidelines and access to information

Lines of enquiry:

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

The Pharmacy and Therapeutics Committee had developed a number of multi-disciplinary medication management policies which were approved by the Pharmacy and Therapeutics Committee and the Clinical Governance Committee. Inspectors observed that up-to-date versions of medication policies, procedures, protocols and

guidelines were readily available to staff in clinical areas through a controlled electronic document management system.

The hospital had a policy on medication incident reporting where the scope of the policy applied to pharmacists only to report medications incidents using a pharmacy data base. The hospital had a second policy on medication incident management which applied to all hospital staff to report medications incidents such a medication errors, near misses and adverse drug reactions. This hospital also had a policy on labelling high risk, high alert and SALAD medications and a procedure for 'one off' requests for medications not previously stocked.

Clinical pharmacy staff provided key information about medications to medical, nursing and other healthcare staff. While the hospital reported that they did not have a prescriber's guide,[**] each clinical area had access to a folder containing printed copies of intravenous medication administration protocols and monographs. This information was also available to clinical staff on the hospital's information system which inspectors viewed. All drug monographs, protocols and drug information sheets were approved by the Pharmacy and Therapeutics Committee and standardized across the hospital by the Pharmacy Department. In addition, a number of decision support tools were available to staff and displayed in clinical areas including intravenous medication monographs. Other support available to staff in clinical areas included the British National Formulary.

Clinical staff had access to patient's diagnostic results on computers in clinical areas across the hospital. Healthcare staff requires access to complete and accurate patient information, relevant to the safe use of medications, at the point of clinical decision making to help ensure patient safety.

2.6 Training and education

Line of enquiry:

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

Medication safety awareness in the hospital was promoted through staff communication including circulation of medication safety alerts and through medication safety education and policies. The hospital did not have a formalised education programme for clinical staff linked to an overall medication safety strategy. However, inspectors were informed that medication safety alerts were disseminated to medical staff by the chief pharmacist and to nursing staff by the

[**] Prescribers' Guide – a guide that contains the agreed Mater Misericordiae University Hospital's policies involving medications as well as the hospital medication formulary.

senior nurse mangers. In addition, new medicines management information was provided to relevant medical staff through Grand Rounds[††] and to nursing staff at the clinical nurse managers meetings. Pharmacy staff provided presentations on medication safety risks to medical, nursing and healthcare staff as required.

Hospital managers told inspectors that medication safety education was included in non-consultant hospital doctor's induction training and nursing staff's induction training. Information was provided to doctors by a clinical pharmacist who also followed up with additional training every three months. Nursing staff completed the Health Service Executive medication management online training programme.[21] In addition, nursing staff completed training on the administration of intravenous drugs as part of their induction training

The implementation of changes to hospital policies, procedures and guidelines were supported by staff education, for example, the sepsis protocol[‡‡] was recently disseminated to staff. The hospital was in the advance stage of devising an e-learning programme on their drug kardex relating to prescribing and the administration of drugs which they planned to implement for medical and nursing staff. The hospital also had a medication safety week to encourage staff to report medication incidents.

[††]Grand rounds are formal meetings where physicians and other clinical support and administrative staff discuss the clinical case of one or more patients. Grand rounds originated as part of medical training.
[‡‡] As a guide to the management of severe sepsis/septic shock in Ireland along with a mechanism for early recognition and treatment of sepsis. It is recommended that each healthcare...

3. Conclusion

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

Formalised governance arrangements ensure that there are clear lines of accountability in place at individual, team and service level so that healthcare professionals, managerial staff and everyone working in the service are aware of their responsibilities and accountability. [3] During the inspection HIQA inspectors sought clarification regarding the hospital's formalised governance structure in place to support medication safety as there was a lack of clarity expressed at the interview regarding the reporting structures at a more senior level in the hospital. A revised hospital organogram provided to inspectors during the inspection further clarified the reporting lines

Notwithstanding some confusion around reporting relationships however, HIQA found that medication safety was prioritised at organisational level with clear leadership from the Chief Pharmacist and the support of the Senior Management Team, the Pharmacy and Therapeutics Safety Committee, the Medication Safety Committee and staff at the hospital. The hospital had an established system for reporting and addressing medication errors and near misses, and promoted an open reporting culture for learning from medication-related incidents and near misses. High incident reporting rates at the hospital both demonstrate and promote an improved culture of safety.[22] HIQA note that while there was a positive trend in reporting, the majority of medication incident reports were submitted by clinical pharmacists. Therefore, as a next step, senior managers need to work to broaden out participation in the programme beyond the pharmacy department, and work in particular to promote systematic audit and incident reporting amongst other clinical staffing groups.

Inspectors found that the hospital had implemented a number of quality improvement initiatives to reduce medication errors and had developed a number of medication policies. In addition, the hospital had conducted a number of audits relating to medication management, but needs to implement a structured approach to auditing medication aligned to a formalised medication safety strategy.

Patient education is an essential component of the safe, effective and cost-effective use of medicines. Patient medication education should be initiated upon admission and continue throughout the hospital stay.[16,23] The survey conducted by HIQA

provides some information about the information received by patients and this could be used to further improve communication with patients about their medications. A key feature of a medication safety programme is the inclusion of patients' experience of medication in the hospital and uses their views to inform and direct current and future quality improvements in the area of medication safety. [3]

Hospital management should build on their work to date to develop a medicines safety strategy that sets out a clearly articulated multidisciplinary vision for medication safety across the organisation. In the absence of national guidance in this area, international guidelines, which outline best practice in relation to medication safety governance and improvement are available, and should be considered by staff responsible for patient safety in the hospital setting.

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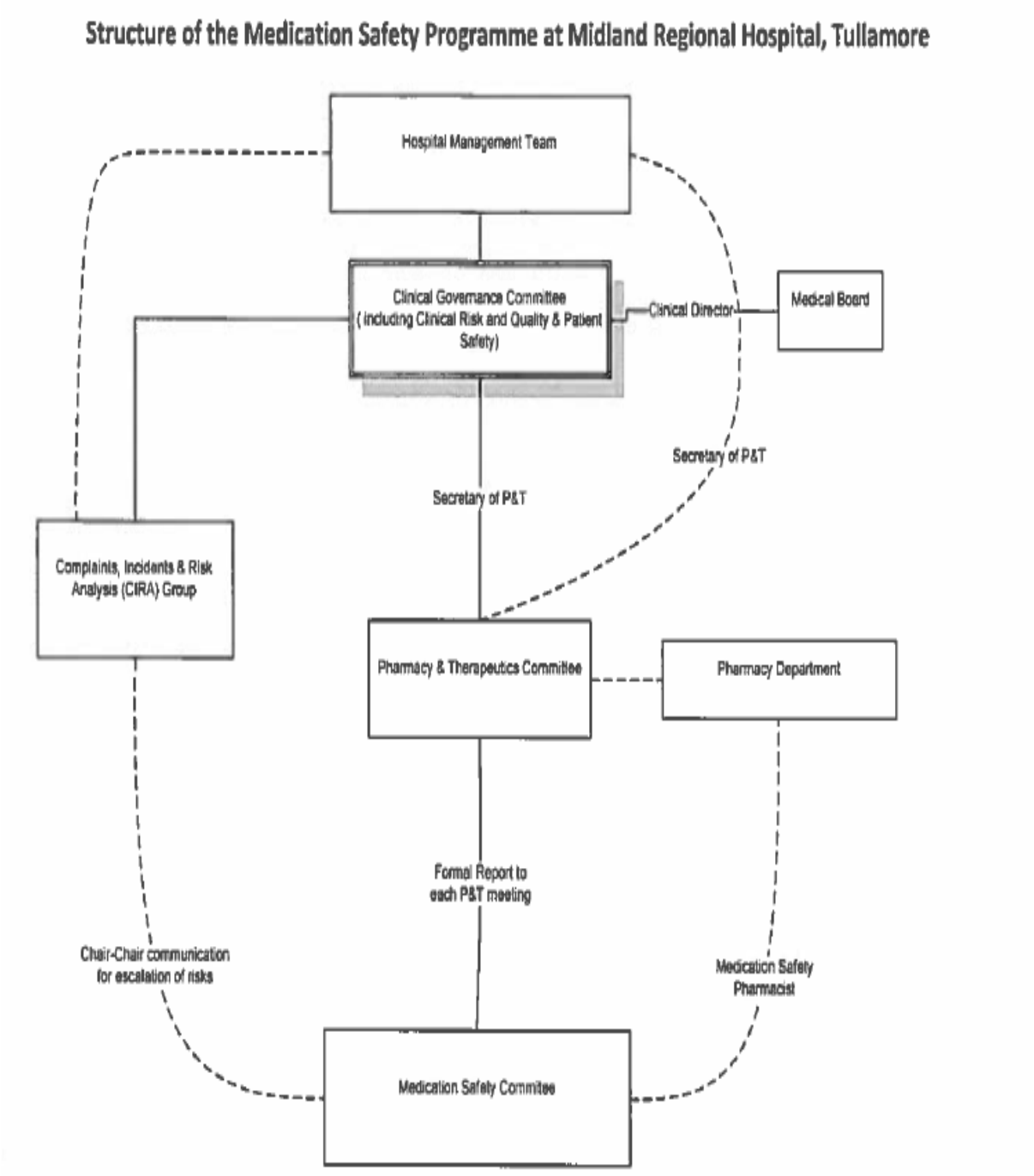
5.Appendices

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

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

Appendix 2 The Midland Regional Hospital, Tullamore: organogram showing lines of communication for medication safety.



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