Report of the announced inspection of medication safety at Naas General Hospital, County Kildare

Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

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Date of announced inspection:

29 November 2016

About the Health Information and Quality Authority

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

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

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

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

Regulation — Registering and inspecting designated centres.

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

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

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

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

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1. Introduction

Medications are the most commonly used intervention in healthcare, and advances in medication usage continue to play a key role in improving patient treatment success. However, where medications 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 in 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 includes 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 Naas General Hospital by Authorised Persons from HIQA; Aileen O' Brien, Judy Gannon and Shane Grogan. The inspection was carried out on 29 November 2016 between 10:00hrs and 16:15hrs. Interviews were held in the hospital with the following groups of managers and clinical staff:

- Group one: a medical senior house officer, a surgical intern and a basic grade pharmacist.
- Group two: the Chairperson of the Drugs and Therapeutics Committee, the Chief Pharmacist, the Head of Risk Management and the Nurse Practice Development Co-coordinator.

- Group three: the General Manager, the Director of Nursing and a consultant endocrinologist.

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

- Allen Ward
- Curragh Ward

In addition a survey was conducted among outpatients in the Outpatients Department.

HIQA would like to acknowledge the cooperation of staff who facilitated and contributed to this announced inspection and the hospital outpatients who spoke with inspectors.

2. Findings at Naas General Hospital

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.

Medication safety at Naas General Hospital was effectively led by the Chief Pharmacist and was supported by the Senior Management Team and staff at the hospital.

The hospital had an established drugs and therapeutics committee with the stated role of 'assuring the safe, efficacious and cost effective use of medication at the hospital in line with evidence-based practice'. The Drugs and Therapeutics Committee was chaired by the General Manager and reported directly into the hospital's Executive Management Team. The Drugs and Therapeutics Committee had been chaired by a hospital general manager for a number of years rather than by a clinician. It is recommended that the chairperson of a drugs and therapeutics committee should have the necessary expertise to devote to this role.[5] There was no defined succession plan for the role of committee chairperson. Committee membership included the Hospital Manager, the Chief Pharmacist, a consultant physician, the Quality and Risk Manager, the Director of Nursing, and the Nurse Practice Development Coordinator.[5] Attendance at committee meetings was variable.

Membership of the Drugs and Therapeutics Committee did not include a consultant microbiologist, a ward manager, a non consultant hospital doctor or a consultant anaesthetist as outlined in the terms of reference of the committee. In addition, the Drugs and Therapeutics Committee did not have representation from the surgical service, general practice or community pharmacy. In medium to large hospitals, drugs and therapeutics committees should at least include a representative clinician from major specialities.[6] Terms of reference reviewed indicated that the Antimicrobial Stewardship Committee reported directly into the Drugs and Therapeutics Committee. Formal links to other hospital committees were not included in the Drugs and Therapeutics Committee terms of reference.

Medication-related incidents and near misses were entered onto the Health Service Executive National Incident Management System. The Senior Management Team reported that there was a good culture of reporting medication–related incidents at the hospital. Higher incident reporting rates both demonstrate and promote an improved culture of safety.[7] Medication-related incidents were a standing agenda item at meetings of the Drugs and Therapeutics Committee where such occurrences were reviewed. Medication-related incidents and near misses were tracked and trended to identify medication safety concerns in line with best practice.

The Pharmacy Department risk register included potential risks related to medication safety around the use of direct acting oral anticoagulants*, medication administration and medication dispensing. Hospital management were able to show that they had implemented proactive measures including medication reconciliation and prescribing supports for staff to decrease potential risk of harm to patients in line with evidence-based practice. A business case had been submitted to hospital management for a medication safety coordinator position.

There was an established system in place to respond to guidance, alerts, recalls and recommendations issued by regulatory bodies in relation to medication safety. Such information was communicated to relevant heads of department. New information was discussed at daily pharmacy staff team meetings and was subsequently communicated as required to clinical teams. The Nurse Practice Development Unit also communicated relevant updates to nursing staff.

Governance arrangements in relation to the Drugs and Therapeutics Committee should be formalised to further enhance the work of this key structure. Membership should include wider representation of prescribers and other relevant stakeholders. Hospital management should build on their work to date to develop a written medium to long-term medication safety strategy that sets out a clear vision for medication safety across the hospital.

2.2 Audit and evaluation

Line of enquiry:

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

Hospital management reported that three performance indicators were used to evaluate medication safety at the hospital and these included nursing metrics, medication reconciliation within 48 hours of admission and nurse prescribing.

* Medications used to treat or prevent blood clots

Nursing care indicators or metrics[†] were monitored twice monthly across the hospital to review practice around some aspects of medication storage and administration. Expansion of nursing metrics to include monitoring of aspects of medication prescribing was being considered at the hospital.

Elements of medication safety were evaluated through audit at the hospital but these audits were not formally aligned to a medication safety strategy. Any identified need for improvement was communicated to the nurse in charge of the relevant ward.

The hospital had evaluated its medication reconciliation service in line with the World Health Organisation's guidelines for medication reconciliation.[8] A series of audits conducted in 2009, 2011 and 2016 indicated that medication reconciliation practices at the hospital had, over this timeframe, significantly decreased the number of unintentional unresolved medication discrepancies[‡] at 48 hours. The hospital had also completed a study around clinical pharmacist interventions in the Emergency Department in collaboration with Tallaght Hospital and Trinity College Dublin and had published findings in a scientific journal in 2013.[9]

A number of medication safety and medication management audits had been conducted at the hospital. Practice around the management of multi-dose insulin vials and medication fridges had been reviewed and audited and improvements in practice were observed. Nurse prescribing had also been audited.

There was a system in place to centrally coordinate audits undertaken at the hospital.

Formal reports from the Drugs and Therapeutics Committee to the Executive Management Team included such issues as significant expenditure, any serious incidents or complaints and there was a document template to facilitate this reporting. In addition it was reported that medication safety issues were discussed at hospital performance meetings of the Dublin Midlands Hospital Group which includes Naas General Hospital. Medication-related incidents were reviewed at meetings of the Drugs and Therapeutics Committee. Serious incidents were investigated by the Serious Incident Management Team at the hospital.

Current medication safety monitoring arrangements could be strengthened and formalised to regularly provide assurance to the senior hospital management team about medication safety at the hospital.

[†] Metrics are parameters or measures of quantitative assessment used for measurement and comparison or to track performance.
[‡] A discrepancy is described as any difference between the gold-standard pre-admission medication list and the admission prescription.

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's had an up to date adult medication prescribers guide which contained extensive information about medications. The guide was shared with Tallaght Hospital and had been adapted for use in Naas Hospital. Requests for the supply of new medications were assessed by senior pharmacy staff but the hospital did not have a formalised process for assessing and evaluating such requests.

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 medical or surgical team from Monday to Friday. Team-based clinical pharmacy is the provision of clinical pharmacy services to patients under the care of a given hospital consultant and their team. In Naas General Hospital a clinical pharmacist attended consultant-led ward rounds held each morning to review the medications prescribed to patients admitted overnight. 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 to all patients on admission to Naas General hospital in line with recommended practice.[16,17,18,19] 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.[6,8,9,19.] This service was provided by clinical pharmacy staff at the hospital.

The hospital's medication reconciliation service was underpinned by a medication reconciliation policy which specified that all patients should have medication reconciliation completed within 24 hours of admission or on the next working day. A clinical pharmacist collected a gold standard pre-admission medication list[§] using a designated admission medication reconciliation form. Patients pre-admission medications were verified by a clinical pharmacist 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 chart.

[§] A standardised method of collecting and documenting an accurate current list of prescribed and non prescribed medication for an individual patient using as many sources of information as possible.

The hospital had trialled discharge medication reconciliation computer software in collaboration with eHealth Ireland, the School of Pharmacy at University College Cork, a private company and St Luke's General Hospital Kilkenny. Following on from this, hospital management hopes to progress the implementation of an electronic system to facilitate discharge medication reconciliation and the use of computer-generated prescriptions.

The hospital had identified that a significant percentage of detected medication-related incidents related to the use of direct acting oral anticoagulant medications and had proactively introduced a number of measures to address this risk. In addition to the provision of clinical pharmacy interventions, red alert stickers were used on medication packaging and in medication prescription charts to highlight that direct oral anticoagulants should not be given in conjunction other types of oral anticoagulant. Such dual prescribing could increase a patient's risk of bleeding.

The hospital had evaluated the use of an automated medication dispensing cabinet for medication dispensing out of hours.

In addition, the hospital had implemented or was trialling multiple initiatives aimed at optimising medication safety:

- The hospital medication prescription sheet had been revised and there were designated sections for communication of medication issues, anticoagulants, antimicrobials and infusions. The section for anticoagulants which are high-risk medications was on the first page of the prescription sheet and was highlighted in red.
- An insulin prescription chart to reduce the risk of error around insulin prescribing was developed in collaboration with staff and consultant endocrinologists in the Dublin Midlands Hospital Group. Staff education had been provided to support trialling of the new chart.
- There was a designated form for prescribing subcutaneous medication delivered by syringe driver that could be pasted into the main medication prescription chart.
- Orange stickers were placed in healthcare records to highlight clinical pharmacist advice.
- Red aprons were worn by nurses dispensing medications during medication rounds to remind others not to distract them as interruptions could potentially lead to error.
- As part of the productive ward[**]quality improvement initiative, wall mounted white boards were used in wards to highlight patients on intravenous

[**] The Productive Ward: *Releasing Time to Care*™ is a quality improvement initiative designed and licensed by the UK National Health Service Institute for Innovation and Improvement to drive forward improvements in health services through redesigning and streamlining the way staff and services deliver care with an emphasis on patient safety.

medications to facilitate timely intravenous to oral medication switch or medication discontinuation as appropriate.
- An orange coloured bag to store patients' inhalers was being piloted on one ward. This was to reduce the risk of misplacing inhalers and possibly missing a medication dose.
- Only one nurse dispensed from a drug trolley at any one time to reduce the potential risk of error if two nurses were dispensing to separate patients from the same trolley at the same time.
- The hospital was involved in the development of a computerised system for supporting the management of patients on warfarin therapy.
- It was hospital policy that two people verified the administration of specified high-risk medications.
- Double checking of medications by staff was required for medication administer by injection and infusion and where dose calculation was necessary.
- Kits to facilitate the management of diabetic patients with low blood glucose levels were stocked in clinical areas.

Inspectors were informed that the hospital had a policy in place to promptly inform patients when medication-related incidents occurred. Medical and nursing staff who spoke with inspectors could provide examples of when this open disclosure policy was adhered to. Open disclosure occurs when staff in health services communicate with patients in an open and honest manner when things go wrong with patient care.

The implementation of medication safety initiatives across the hospital were further facilitated by the Nurse Practice Development Unit with the cooperation of clinical staff.

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.

Naas General Hospital had systems in place to support the provision of patient information and education in relation to medication. Inspectors were informed that clinical pharmacists offered counselling to all patients prescribed oral anticoagulant medication. Patient information leaflets were available at the point of care. Patients were given general information on anticoagulation medication, an education booklet and an alert card. Patient could then show their alert card to their healthcare provider to indicate that they were taking oral anticoagulation medication. The

Pharmacy Department had also established weekly outpatient education clinics for patients who had commenced on direct oral anticoagulant medication. In the event that a patient did not receive one to one counselling from a clinical pharmacist about anticoagulation medication whilst an inpatient, they were invited to attend this clinic. Patients with similar conditions were provided with education in a small group or individually if required. If a patient did not attend their appointed clinic time a pharmacist contacted them to arrange an alternate appointment or to provide counselling by telephone. Clinic appointments could be made by pharmacists, medical or nursing staff using a designated referral form. This is another example of how the hospital optimised their available clinical pharmacy resources to provide standardised care to patients prescribed high-risk medications.

Clinical nurse specialists also provided education and support to patients for example around the management of diabetes mellitus or respiratory disease.

As part of this inspection, HIQA asked a small sample of hospital outpatients attending the Outpatients Department to complete an anonymised questionnaire in relation to prescribed medications. The questionnaire was completed by 20 people who had been inpatients in Naas General Hospital within the past year and who were prescribed regular medications. Of the 20 people surveyed:

- 55% said that said that, other than being provided with a prescription to take to their local pharmacy or general practitioner, they had not been given a list[††] that outlined the medications they were on in a way that they could understand
- 50% said that a staff member had explained the purpose of new medication in a way that they could understand
- 45% said that a staff member told them about possible medication side effects to look out for following discharge home
- 65% said they received instruction on how to take their medications at home.

It is acknowledged that this was a small sample of outpatients and therefore was not representative of all recently discharged patients taking prescribed medication. This information does however, provide some information about outpatients understanding and could be expanded upon and used to identify opportunities for improvement. An up-to-date medication list provides real-time information to health care providers at the point of both prescribing and dispensing to support informed, shared decision making about adding an additional medicine to a patients existing medication regimen.[20]

[††] Patient-held medication lists are completed by a healthcare professional to accurately list all medications the patient is taking at time of discharge.

Inspectors were told that the hospital also had independent patient advocates in place who conducted regular patient surveys which included questions regarding information provided to patients about medications.

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 Drugs and Therapeutics Committee had approved a number of multi-disciplinary medication management policies, procedures, protocols and guidelines to support safe medication management systems within the hospital. 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.

Clinical pharmacy staff provided key information about medication to medical, nursing and other staff, as well as to patients. Each clinical area had access to a folder containing printed copies of intravenous medication administration protocols. This information was standardised across the hospital and was controlled by the Pharmacy Department. Decision support tools had been developed for clinical staff for example in relation to antimicrobials, diabetic ketoacidosis[‡‡] and the management of bleeding. The hospital prescribing guide was accessible to staff in clinical areas both in printed format and as an electronic application. Other support available to staff in clinical areas included the British National Formulary.

Implementation of new policies procedures or guidelines was supported by communication and education provided by clinical pharmacists and the Nurse Practice Development Unit.

Healthcare 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. Clinical staff had access to patient's laboratory and radiology results on computers in clinical areas across the hospital.

[‡‡] Ketoacidosis is a life-threatening condition in which the body doesn't make enough insulin leading to dangerously high levels of ketones and blood sugar.

The Nurse Practice Development Unit also produced regular bulletins which included medication safety issues. The hospital also provided examples of internal communications that had been circulated to staff concerning medication safety, for example, in relation to opioid prescribing in palliative care.

2.6 Training and education

Line of enquiry:

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

It was reported that 82% (53 out of 65) of nursing staff who had commenced employment at Naas General Hospital in the past two years had attended medication management training incorporating intravenous medication administration. In addition, nursing staff completed the Health Service Executive medication management online training programme.[21]

It was reported that medication safety education was included in non consultant hospital doctor's induction training. Information was provided to doctors by a clinical pharmacist about the clinical pharmacy and medication reconciliation service, general prescribing advice, high risk medications, medication-related incidents and resources available to support safe medication prescribing. The Pharmacy Department had also recently provided training about medication safety to non consultant hospital doctors detailing the most common medication-related incidents reported at the hospital and about prescribing high-risk medications. Educational supports which included weekly meetings were in place for nurse prescribers.

The implementation of changes to hospital policies, procedures and guidelines were supported by staff education and information sessions. A regular pharmacy staff journal club included patient case studies, medication safety initiatives, new developments and clinical audit at the hospital. An annual audit day was held at the hospital to feedback results of all audits conducted at the hospital to staff.

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 safety should therefore be a priority area for all acute hospitals as they seek to ensure a high quality and safe service for patients.

HIQA found that a medication safety agenda was being actively progressed at Naas General Hospital. Medication safety was prioritised at organisational level with clear leadership from the Chief Pharmacist and the support of the Senior Management Team and staff at the hospital. Over a number of years the hospital had worked to implement evidence-based practice to optimise medication safety for patients with the resources available to them and many proactive initiatives to address medication safety risks had been implemented. In this regard, the hospital was effectively collaborating with other hospitals within the Dublin Midlands Hospital Group.

A team-based clinical pharmacy service was provided across the hospital. The service included the provision of expert advice to prescribers. Medication reconciliation was carried out on patient admission in line with recommended practice and the hospital was able to demonstrate that this service was effective. The hospital was involved in the development of a computerised system to facilitate discharge medication reconciliation. The hospital had initiated multiple proactive measures to enhance medication safety and to support prescribers. The use of available clinical pharmacy resources was optimised to provide standardised support to all patients prescribed oral anticoagulant medication at the hospital.

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.[16,22] 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.

Hospital management should build on their work to date to develop a medium to long-term medication safety strategy that sets out a clear vision for medication safety across the hospital. It is also recommended that the hospital strengthen and formalise governance and monitoring arrangements around medication safety. In the absence of national guidance in this area, international guidelines which outline best practice in relation to medication safety governance are available, and should be considered by staff responsible for patient safety in the hospital setting.[5,6]

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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*	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 medication 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

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