Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Report of the announced inspection of medication safety at Naas General Hospital.

Date of announced inspection: 17 April 2019

About the Health Information and Quality Authority (HIQA)

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

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

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

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

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

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

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

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

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

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1. Introduction

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

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

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

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

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

HIQA's medication safety monitoring programme 2019

HIQA published a national overview report of the medication safety monitoring programme *'Medication safety monitoring programme in public acute hospitals- an overview of findings'*[11] in January 2018 which presented the findings from thirty-

* Polypharmacy: the use of many medications, commonly five or more.

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

The final phase of HIQA's medication safety monitoring programme has been updated and developed and the current approach is outlined in eight lines of enquiry[†]. The lines of enquiry are based on international best practice and research, and are aligned to the national standards[1] (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 Organization[2] to describe situations where there is an increased risk of error with medication use. These situations could include high risks associated with the people involved within the medication management process (such as patients or staff), the environment (such as higher risk units within a hospital or community) or the medication.

International literature recommends that hospitals identify high-risk medications and high-risk situations specific to their services and employ risk-reduction strategies[‡] to reduce the risks associated with these medications (Appendix 2).[14]

System-based risk-reduction strategies have a higher likelihood of success because they do not rely on individual attention and vigilance, and a small number of higher-level strategies will be more likely to improve patient safety than a larger number of less effective strategies.[14] Therefore, risks associated with the procurement, dispensing, storage, prescribing, and administration of high-risk medications need to be considered at each step of the medication management pathway.[15]

[†] Lines of enquiry are the key questions or prompts that inspectors use to help inform their inspection, assessment or investigation.
[‡] Risk-reduction strategies: a term used to describe different ways of dealing with risks. Strategies include risk avoidance, transfer, elimination, sharing and reducing to an acceptable level.

Information about this inspection

An announced medication safety inspection was carried out at Naas General Hospital by Authorised Persons from HIQA; Kay Sugrue and Maeve McGarry. The inspection was carried out on 17 April 2019 between 09:00hrs and 16:15hrs.

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

- Theatre department
- Imaal ward

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

- Group one: the chairperson of the Drugs and Therapeutics Committee, a chief pharmacist and the risk manager.
- Group two: the director of nursing, the general manager and the clinical director.

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

Information about the hospital

Naas General Hospital is a model 3[§] public acute hospital in the Dublin Midlands Hospital Group providing acute-care hospital services including a 24-hour emergency department.

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

2. Findings at Naas General Hospital

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

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

2.1 Leadership, governance and management

Hospitals should have governance arrangements in place to support the development, implementation and maintenance of a hospital-wide medication safety system.[15,16] Naas General Hospital 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 was accountable to the hospital Executive Management Team through a formalised reporting structure via the Quality and Patient Safety Committee. Overall corporate responsibility for oversight of medication safety within the hospital rested with the General Manager.

The Drugs and Therapeutic Committee had multidisciplinary membership which had broadened since the last HIQA inspection in 2016 to include a representative from a non-consultant hospital doctor and the committee was now chaired by a consultant physician.[17] Similar to findings of the last medication safety inspection, there was still scope to further extend membership to include wider representation of prescribers and other stakeholders. For example, inspectors found that there was still no surgical service or community representation on the committee. The hospital had strengthened links with general practitioners (GPs) through a GP liaison group and the pharmacy team had developed links with community pharmacists. Inspectors were informed that the GP liaison group was involved in the design of the current hospital discharge prescription.

The governance arrangements in place for medication safety were reviewed and strengthened since the last HIQA inspection in 2016. Although there was some common membership between the Drugs and Therapeutics Committee and Executive Management Committee, there was a lack of formalised reporting from the Drugs and Therapeutics Committee to governance. Inspectors were informed that pertinent issues were addressed and triaged at the weekly Senior Management Team meeting, but this was not reflected in the organogram provided to HIQA. The governance structures for medication safety could be clarified to reflect the practical process in place.

The Drugs and Therapeutics Committee produced an annual report summarising activities completed. However the annual report lacked detail to provide assurance that the committee was operating within its terms of reference.

Hospitals should have a clear corporate strategy that sets out the organisation's mission, values, role, functions and actions to be taken to meet organisational goals.[18] A draft strategic plan for the next three years was viewed by the inspection team which incorporated objectives for 2019. These objectives included the recruitment of a medication safety officer and the formation of a Medication Safety Working Group as a sub-committee of the Drugs and Therapeutics Committee. There was scope to further extend these objectives to include a plan of action around data collection, monitoring of medication safety and training requirements.[5]

The hospital produced a medication safety report for 2018 which briefly summarised the decisions actioned and implemented, but there was a lack of evidence that these actions were related to a strategy or a prospective monitoring programme for medication safety.[16]

Inspectors were informed that the hospital had strong links with Tallaght University Hospital which supported shared learning across sites. Naas General Hospital also had an association with the HSE quality improvement division and was a pilot site for medication safety-related initiatives. The hospital had acted to positively improve local services to patients through the development of these external relationships. However, staff who spoke to inspectors expressed that there was further potential to increase integration, collaboration and shared learning across the Dublin Midlands Hospital Group from a medication safety governance perspective.

Opportunities for improvement

- The hospital should review the membership of the Committee to ensure it is reflective of the services provided by the hospital, with representatives from the major specialities and community in attendance.
- The hospital should look to develop formal, periodic reporting from the Drugs and Therapeutics Committee to the Executive Management Team.

2.2 Risk management

Medication-related risks requiring additional control measures were documented on the hospital's corporate risk register. Eight medication safety-related risks were identified, risk rated and regularly reviewed on the risk register viewed by the inspection team. Staff informed inspectors that issues relating to anticoagulant therapy were highlighted from incident reporting and controls were put in place. The risk was initially identified with respect to direct oral anticoagulants and was extended to all anticoagulants.

Incidents[**] that occurred in the hospital were reported to the State Claims Agency using the National Incident Management System[††](NIMS).[19] A total of 120 medication incidents were reported in 2018 which showed a pattern of decrease since 2017 (see figure 1). However, there was also a decrease in the occurrence of moderate incidents. It was reported to inspectors that clinical pharmacy interventions positively impacted on the rates of incident reporting. However, there was scope to improve incident reporting across all disciplines, particularly for medical staff, with only 1% of incidents reported by doctors and the majority (>70%) by nurses.

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.[20,21] Overall, staff who spoke with inspectors showed a general awareness on improvement measures implemented on learning gained from analysis of medication incidents, such as the rationale behind changes to the medication record.

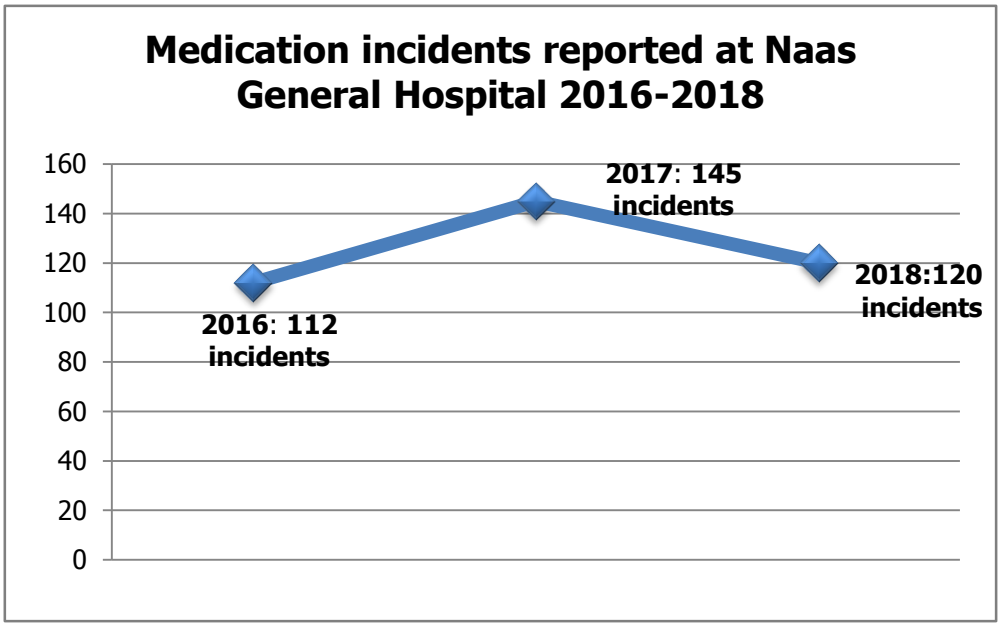

Figure 1. Medication incidents reported 2016 to 2018

Analysis of incidents

Medication incidents were categorised using the NIMS system as relating to person, or dangerous occurrence. Inspectors reviewed medication incident reports for 2017

[**] 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).

and 2018 produced by the Drugs and Therapeutics Committee. The data taken from NIMS was trended and analysed based on classification, severity rating, process where incident occurred, medication class, location and timeliness. There were no major incidents reported and moderate incidents were highlighted in the report. The hospital had identified the need to increase the frequency of reporting from every six months to monthly through the medication safety working group.

Analysis of incidents is an important source of data contributing to medication safety intelligence, but is inherently reactive. It is recommended that in addition to incident analysis, a proactive approach is taken to gaining intelligence around medication safety.[22] Data gained from monitoring and auditing pharmacist activity and interventions is an example of proactive data and is potentially a valuable intelligence source.

It was reported that a significant number of interventions were made by pharmacists through the medication reconciliation process on admission at Naas General Hospital. Inspectors were informed that these interventions were not routinely analysed or recorded as incidents as they may not have necessarily met the criteria of a near miss. It was explained to the inspection team that analysis of pharmacy interventions is resource intensive and the process was audited every two years using a sample of 100 medication records. Inspectors identified that there was potential to gain further learning and intelligence on issues relating to medication safety through increased frequency of auditing of pharmacist interventions to proactively identify and address potential issues in a timely way.

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 front-line staff.[23]

Alerts and recalls

The clinical director received and acted on alerts and recalls[‡‡] related to medication if relevant to the service. An example of the action taken in response to a recent alert was outlined to inspectors.

Opportunities for improvement

- The hospital must continue to promote incident reporting and ownership of incident reporting among all clinical staff and across all clinical areas within a

[‡‡] 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.

just culture,[§§24] to strengthen reporting of medication incidents so that safety surveillance is improved.

- The hospital should consider increasing the frequency of analysis of incident reporting and auditing of pharmacy interventions to improve medication safety intelligence.

2.3 High-risk medications and situations

High-risk medications require special safeguards to reduce the risk of errors and minimise harm. High-risk situation is a term used by the World Health Organization[3] to describe situations where there is an increased risk of error with medication use. 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 for more information).

Naas General Hospital had developed a high-risk medications list which was described in the locally adapted medications guide and based on international literature. The hospital also recently approved the use of an A PINCH[†††] poster which was displayed in clinical areas. However, there was ambiguity in relation to the identified high-risk medications as there was a discrepancy between the poster and the medications guide in terms of potassium and other concentrated electrolytes. This discrepancy should be reviewed to ensure clarity for staff around locally identified high-risk medications.

The hospital had implemented a combination of associated risk-reduction strategies which were observed to be embedded in practice by inspectors. The following sample of high-risk medications were reviewed in detail during this inspection to identify the risk-reduction strategies in place:

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

§§ The framework of a just culture ensures balanced accountability for both individuals and the organisation responsible for designing and improving systems in the workplace.
*** 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.
††† A PINCH: the acronym A PINCH represents high-risk medications including † Anti-infectives, Potassium, Insulin's, Narcotics, Chemotherapy, Heparin and other anticoagulants. Medications represented by the acronym may vary between hospitals depending on relevant risks

Anticoagulants[‡‡‡]

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

- a pharmacy led direct oral anticoagulant[§§§] (DOAC) clinic developed from incident learning, where patients were assessed, possible drug interactions reviewed and education provided
- DOACs were patient specifically dispensed
- storage of anticoagulants in clinical areas was rationalised and segregated
- low molecular weight heparins (LMWH)[****] and unfractioned heparin was not routinely stored on the wards
- unfractioned heparin and higher dose LMWHs were only dispensed to individual named patients and were stored securely in patients' own drugs tray on the drug trolleys
- overall there were low stock levels of anticoagulants in clinical areas and there was no storage of anticoagulants in theatre
- the medication record was updated with a specific pink coloured section to enhance anticoagulant prescribing.

Staff reported that the updated anticoagulant section of the medication record was a welcome improvement, easy to use and supported safe prescribing. The prescription sheet had printed administration times to allow for prescribing and administration up to three times per day. However, inspectors observed a prescription chart for one patient that once a day prescriptions of anticoagulants were not given consistently at the same time each day.

Concentrated potassium chloride

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

- two strengths of pre-mixed potassium chloride solutions were available and dispensed by pharmacy to clinical areas
- there was rationalised storage of pre-mixed potassium chloride observed in the ward area separated from other intravenous solutions

[‡‡‡] 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.
[****] Heparin is an anticoagulant specifically used in the initial treatment and prevention of deep vein thrombosis, pulmonary embolism, and arterial thromboembolism.

- concentrated potassium chloride ampoules were not routinely stocked on general wards but were restricted to approved areas such as the intensive care unit
- outside of critical care areas, local policy indicated that concentrated potassium chloride ampoules were dispensed on a patient specific basis and labelled accordingly[25]
- the medication record supported safe infusion practices
- intravenous pumps were used for the administration of concentrated electrolyte solutions
- intravenous monographs included maximum recommended rates of administration.

Overall high risk-reduction strategies were in place for concentrated electrolytes. However, inspectors identified two concentrated potassium chloride ampoules stored in the controlled drug cupboard in one clinical area. Patient specific dispensing and labelling was not evident for these ampoules, which was not in line with local hospital policy.

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.[26] A diverse range of medications are used which have the potential for a serious adverse event if administered incorrectly.[27] 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:

- colour-coded trays aligned with international labelling systems were used for identifying and segregating drawn up emergency medications and local anaesthetic injections
- international colour-coded labelling of drawn up medications applied in practice
- standardised storage of anaesthetic medications was evident in all theatre areas assessed
- colour-coded administration pumps were used to differentiate modes of administration such as peripheral nerve block, epidural or patient controlled analgesic
- there was rationalised storage of high-risk medications
- emergency drugs were drawn up by the anaesthesiologist at the start of each day, stored in a designated red tray and disposed of at the end of each case

- anaesthetic medications were drawn up, reconciled and if not used were discarded at the end of each theatre procedure
- medications were prepared, labelled and administered by the same doctor for elective surgeries
- a clinical pharmacist was assigned to the surgical team.

There was evidence of good communication regarding medications administered at transitions of care right through the perioperative patient pathway. The perioperative nursing report listed medications given and supported verbal handover by nursing staff. An ISBAR[††††] handover tool was developed for the intensive care unit following staff feedback that the handover was previously inconsistent.

Insulin

Inspectors viewed a number of risk-reduction strategies to mitigate against the risks associated with insulin including:

- the medications prescription and administration record for insulin was recently updated and supported safe prescribing
- the main kardex had a section on the front alerting the use of an insulin kardex
- insulins were confirmed at medication reconciliation at the point of admission
- insulin pens were patient specifically dispensed
- insulins not in use were appropriately stored in a temperature controlled fridge
- multi-dose vials once opened were labelled as patient specific in line with recommended best practice.[28]

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:

- Systems in relation to sound-alike look-alike medications (SALADs)[‡‡‡‡] were embedded in practice and commenced at procurement and rationalisation of purchasing and storage. Tall man lettering was also used where appropriate.

[††††] The ISBAR (Identify -Situation-Background-Assessment-Recommendation) is a communication technique which encourages staff to gather the appropriate information and provides a framework for organising this information in a clear and concise format.
[‡‡‡‡] SALADS are 'Sound-alike look-alike drugs'. The existence of similar drugs 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.

- The hospital stocked one strength of intravenous paracetamol and the use of intravenous paracetamol promoted input and review by a clinical pharmacist. The local intravenous medication guideline (also called a monograph) for paracetamol guided staff and there was evidence that dose adjustments were made where required for patients less than 50kg.

Overall, Naas General Hospital had implemented evidence-based safety measures for high-risk medications as a result of sustained efforts in relation to medication safety over a number of years and should be commended on this. Inspectors found a range of low, medium and high leverage risk-reduction strategies in place. There was evidence that these measures were embedded in practice and that staff were aware of the strategies employed to protect patients from the risk of harm.

Opportunities for improvement

- The hospital should ensure that the risk-reduction strategies and policies in place are audited periodically in line with the objectives of the Drugs and Therapeutics Committee or Medication Safety Committee.

2.4 Person-centred care and support

Patients should be well informed about any medications they are prescribed and any possible side effects. This is particularly relevant for those patients who are taking multiple medications.[29, 30]

National patient experience survey

The Naas General Hospital National Patient Experience Survey [§§§§] was completed by 297 patients discharged from the hospital in May 2018. Two questions related directly to medication in the National Patient Experience Survey. The scores for Naas General Hospital and the national scores for both 2017 and 2018 are illustrated in table 1 below.

[§§§§] The National Patient Experience Survey was a nationwide survey which asked people for feedback about their stay in hospital. The survey was a partnership between the Health Service Executive (HSE), HIQA and the Department of Health. All adult patients discharged during May 2017 who spent 24 hours or more in a public acute hospital, and have a postal address in the Republic of Ireland were asked to complete the survey.

Question	Year	Naas General Hospital score	National score
Q44. Did a member of staff explain the purpose of the medicines you were to take at home in a way you could understand?	2018	8.1	8.0
	2017	7.7	7.8
Question	**Year**	**Naas General Hospital score**	**National score**
Q45. Did a member of staff tell you about medication side effects to watch for when you went home?	2018	4.9	5.2
	2017	4.2	5.1

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

Naas General Hospital had an overall score***** of 8.1 for question 44 which was marginally higher than the national average score of 8.0.[31] However, for question 45 the score was below the national average score of 5.2. For both questions the responses represented a small improvement from the 2017 scores and provide opportunity for improvement in relation to patient education about medications they are prescribed and the possible side effects.

Patient information

Naas General Hospital had systems in place to provide information and education to patients on medication management such as:

- formal counselling by clinical pharmacists and nursing for patients commencing on oral anticoagulants
- counselling provided to patients commencing on cardiac medications in the coronary care unit by nursing staff
- pharmacists provided education to patients on the cardiac rehabilitation and pulmonary rehabilitation programmes
- education for patients prescribed opioids was provided by a clinical nurse specialist.

***** 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.

The patient information leaflets viewed by inspectors were a blend of medication package inserts provided by the manufacturer and those produced by external bodies. A draft patient leaflet about leaving hospital was developed in response to the National Patient Experience Survey and included a section relating to medications at discharge. Furthermore, clinical nurse specialists and advanced nurse practitioners provided patient information in specialist areas such as stroke, respiratory, diabetes and palliative care.

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.[32, 33,34]

Medication reconciliation was undertaken on admission by a clinical pharmacist for 100% of all patients at Naas General Hospital. At the weekends, it was carried out within 72 hours of admission. This service was prioritised even in the instance of staff leave. Efforts were being made by the hospital at the time of inspection to improve medications reconciliation at discharge. In the Imaal ward up to 70% of patients had medications reconciliation at discharge and the hospital had prioritised extending this service under the 2019 objectives for medication safety.

It was clearly evident that the hospital has taken a proactive approach to medication safety through prioritising and focusing resources on medications reconciliation as an important patient safety initiative.

Systems to support medication safety and optimisation

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

- clinical pharmacists endorsed routes of administration including crushed medication prescriptions
- medication reconciliation on admission was considerate of optimisation of medications prescribed
- medication reconciliation on admission considered falls risk and polypharmacy
- non generic prescribing was endorsed by clinical pharmacists during admission medication reconciliation
- alert symbol above patients' beds indicating they had an allergy
- the medication record was designed to suit the short stay patients attending for planned surgery and the longer stay patients transferred from other acute hospitals who were admitted for rehabilitation care. Inspectors identified scope to improve the recording of patient weight measurements on the medication record to allow for multiple entries for patients in hospital for longer periods.

Patient weight measurements are important for medications that require an individual weight-based dose.[35]

Opportunities for improvement

- The hospital should continue its efforts to expand medication reconciliation at the point of 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.[36,37,38,39,40,41] Inspectors found that clinical pharmacy services were available to patients in all inpatient clinical areas. The model of clinical pharmacy employed at Naas General Hospital was that a clinical pharmacist was assigned to each medical team. The clinical pharmacist performed admission medications reconciliation each morning and attended the ward rounds with the team. On Imaal ward, a pilot project was underway whereby a ward based pharmaceutical technician supported the clinical pharmacists by reviewing prescription records, performing stocking and flagging discharges.

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.[42] The hospital had a collaborative relationship with another model 4 hospital within their hospital group and had adapted their directory for their own use. The hospital had a system in place for the approval of new medications through the chief pharmacist which was under the governance of the Drugs and Therapeutic Committee.

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.[15]

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

[†††††] 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 medicines, adverse drug reaction detection and prevention, patient education and counselling.
[‡‡‡‡‡] Formulary: a managed list of preferred medications that have been approved by the hospital's Drugs and Therapeutics Committee for use at the hospital.

- the hospital medications guide was available in hardcopy, electronically and via a phone application
- antimicrobial administration guidelines
- intravenous guidelines (monographs)
- nurse practice development newsletter.

It is recommended, by both the Health Service Executive[43] and the National Clinical Effectiveness Committee[44] that policies, procedures and guidelines are reviewed and updated every three years. Electronically available policies, procedure and guidelines viewed by inspectors during the inspection were up to date. However, some printed policies observed by inspectors were out of date for example, enteral drug administration guidelines.

Opportunities for improvement

- The hospital should ensure that printed policies, procedures and guidelines at the point of care are up to date and meet local document controlled standards.

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.[15]

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

- Nursing care metrics
- Venous thromboembolism (VTE) audit
- Antibiotic duration audits
- Discharge prescription controlled drug audit
- Ward-based technician audit (CBAS)
- Gentamicin audits
- Vancomycin audits
- Medication storage audits.

Five more audits were planned for 2019 with a focus on medication reconciliation on admission and discharge and insulin. A pilot project aimed to examine the effect of a ward-based pharmacy technician commenced on one ward in December 2018 and was due to be completed in June 2019.

Extensive auditing was carried out in 2018 regarding prescribing levels, dosing regimens and monitoring of patients in relation to gentamicin and vancomycin. Audit results were overall positive, demonstrating the presence of antimicrobial stewardship. Areas for improvement were highlighted in relation to appropriate dosing for patient specific weights and the audit suggested that analysing the prevalence of pharmacy input in correcting doses. Following on from audits conducted in relation to gentamicin and vancomycin, a sticker was designed for the prescription record with instructions to guide dose adjustments.

Inspectors were informed that medication safety audits were centralised through the quality co-ordinator. Medications safety audits were reviewed at the Drugs and Therapeutics Committee meeting. Action plans devised following audits were communicated through ward managers and newsletters developed by the practice development department.

The hospital acknowledged that there was scope to further develop medication safety audits at the hospital. The inspection team found that medication safety audits conducted in 2018 did not feature strongly in the 2018 medication safety report viewed. In addition, there was little evidence to show that medication safety audits planned for 2019 were aligned with the medication safety draft three year strategy. The strategy outlined that the medication safety committee would be responsible for coordinating audits of high-risk medications and or situations in the future, however, the focus of targeted improvement within this broad area was not clearly defined. A more structured coordinated approach to planning medication safety audits aligned to a formal medication safety strategy could potentially enhance the hospitals current approach to the evaluation and monitoring of medication safety.

Opportunities for improvement

- Evaluation and monitoring of medication safety should be planned in line with the hospitals overall priorities and aligned to a medication safety strategy.

2.8 Education and training

Staff education can effectively augment error prevention when combined with other strategies that strengthen the medication-use system.[2,45]

Both doctors and nurses undertook medication safety training on induction. Other medication focused sessions were provided for staff on an ongoing basic such as:

- informal ward-based education
- quarterly medication safety study days provided by nurse practice development, with contribution from pharmacy

- medication management incorporating intravenous drug administration for nurses
- Pharmacist's presentations at grand rounds.

For nurses, locally developed induction material contained a medication management log book, which included a list of pertinent policies and an introduction to the prescription sheet. Nurses were encouraged to complete the HSELanD[§§§§§] medication management module[46] on induction, but this was not mandatory and was completed by 65% of nurses overall.

Records of staff that had attended education sessions and completed eLearning programmes could be accessed for nurses. However, similar attendance levels were not actively monitored by the hospital for all disciplines and there was scope to improve overall monitoring to identify who had or had not completed training.

In 2018, five medication management study days took place in the hospital, but these were attended by only 19% of staff, which is a relatively low attendance rate. Although the hospital had developed a local training programme on medication safety, inspectors identified that there was scope to improve attendance levels across relevant staff disciplines with a focus on all prescribers.

Opportunity for improvement

- The hospital should ensure that professionals have the necessary competencies to deliver high quality medication safety through induction and ongoing training. This could be supported by developing a structured targeted ongoing programme of education for medication safety aligned to the hospital's medication safety programme.[11]

[§§§§§] The health service elearning and development service

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.

Overall, Naas General Hospital had established systems in place for high-risk medications relevant to the services provided. Strategies viewed during the inspection showed that good practices were embedded in the provision of care to patients and there was good local ownership on issues relating to medication safety. The hospital had proactively addressed medication safety risks by focusing resources on medication reconciliation and provision of a team based pharmacy across all services. The hospital was effectively collaborating with other hospitals within the Dublin Midlands Hospital Group, as well as the HSE quality improvement division to pilot novel initiatives for medication safety.

The hospital governance arrangements in place for medication safety were reviewed and strengthened since the last HIQA inspection in 2016. However there was scope to define the governance structure for medication safety to reflect the practical process in place.

Since the last HIQA medication safety inspection in 2016, the hospital had implemented a number of quality improvement measures, primarily responding to issues identified from incident learning. In addition, a long-term strategy for medication safety was drafted, which included some annual objectives. Going forward, there is opportunity to develop the strategy to ensure that quality improvements are proactively and prospectively aligned. These objectives and strategy should document and accurately reflect initiatives that are being implemented and achievements to date. Similarly, to further strengthen the monitoring of medication safety, audits should be planned, coordinated and aligned in accordance with the strategy.

The level of reporting of medication-related incidents and near misses at the hospital was relatively low in the context of the hospital activity levels. Inspectors determined that there was scope to improve the culture and ownership of incident and near miss reporting to enhance the medication safety programme at the hospital. Furthermore, there was opportunity to exploit business intelligence from pharmacy interventions, which could inform future initiatives within the medication safety programme.

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

This report should be shared with relevant staff at Naas General Hospital 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.

The opportunities for improvement highlighted in this report require focus from leadership and management at the hospital to ensure that medication safety continues to be seen as a priority, so that patients are protected from known and avoidable harm.

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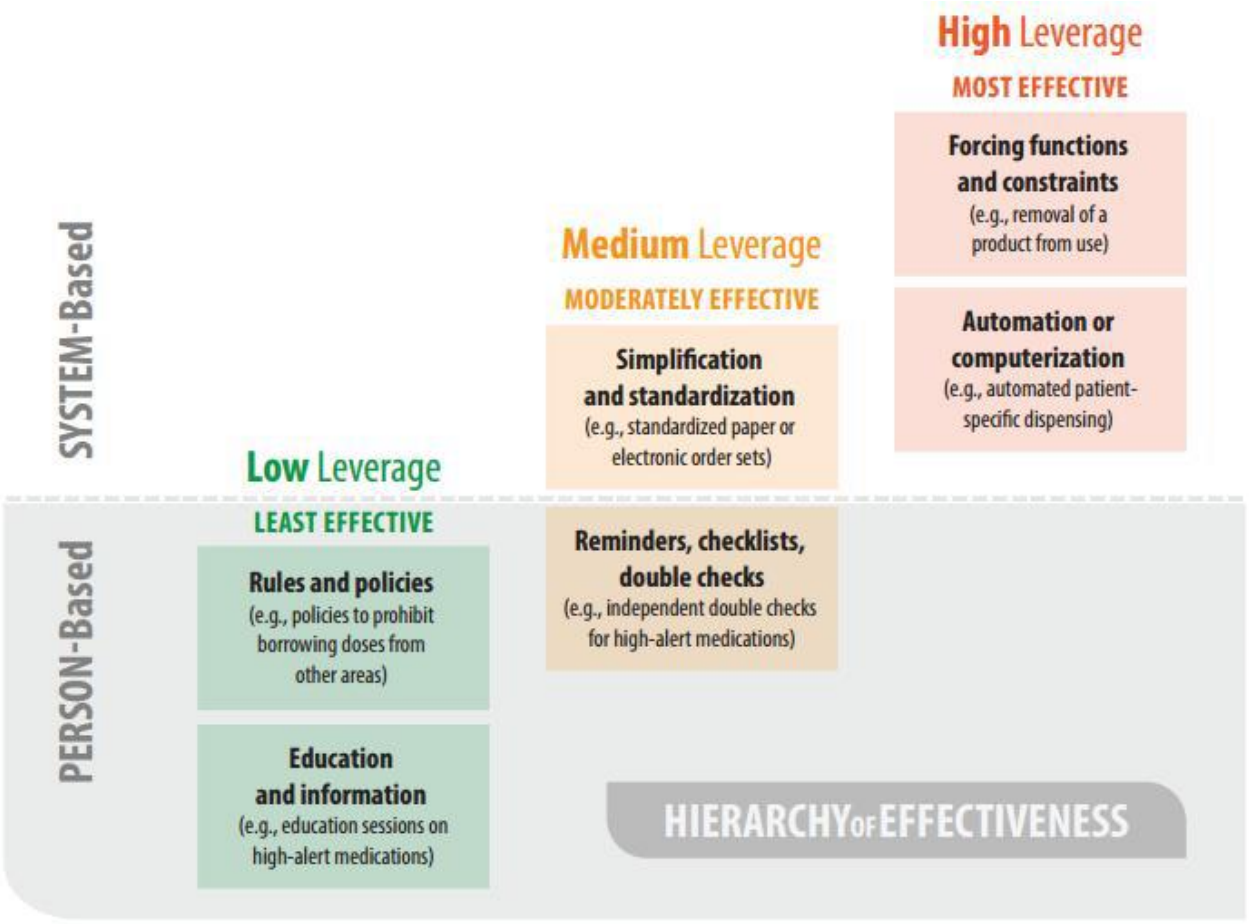
5. Appendices

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

Area to be explored	Lines of enquiry	Dimensions/ Key Areas	National Standards
Leadership, governance and management	1. Patient safety is enhanced through an effective medication safety programme underpinned by formalised governance structures and clear accountability arrangements.	Capacity and capability	3.7, 5.1, 5.2, 5.5, 5.4, 5.6, 5.11
Risk management	2. There are arrangements in place to proactively identify report and manage risk related to medication safety throughout the hospital.	Quality and Safety	3.1,3.2,3.3,3.6, 5.8, 5.11, 8.1
High-risk medications	3. Hospitals implement appropriate safety measures for high-risk medications that reflect national and international evidence to protect patients from the risk of harm.	Quality and Safety	2.1, 3.1
Person centred care and support	4. There is a person centred approach to safe and effective medication use to ensure patients obtain the best possible outcomes from their medications.	Quality and Safety	1.1, 1.5, 3.1, 2.2, 2.3
Model of service and systems for medication management	5. The model of service and systems in place for medication management are designed to maximise safety and ensure patients' healthcare needs are met.	Quality and Safety	2.1, 2.2 ,2.3, 2.6, 2.7, 3.1,3.3, 5.11, 8.1
Use of Information	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.	Quality and Safety	2.1, 2.5, 8.1
Monitoring and evaluation	7. Hospitals systematically monitor the arrangements in place for medication safety to identify and act on opportunities to continually improve medication.	Quality and Safety	2.8, 5.8
Education and training	8. Safe prescribing and drug administration practices are supported by mandatory and practical training on medication management for relevant staff.	Capacity and capability	6.2, 6.3

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



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