Abstract:

One in every ten patients have experienced an adverse event while in a healthcare setting across the globe. The adverse event can occur as a result of a medication event, hospital acquired infection, surgical complication or due to a fall. As a result, the international focus is on healthcare policy reform, legislative changes and development of standards of care aimed at promoting patient safety and providing quality healthcare. This essay focuses on patient safety in relation to medication management by nursing staff with emphasis on the nurses role within medication management, causes and preventive measures of medication errors, prevalence of error reporting and open disclosure and associated barriers. Nursing staff have a huge role to play in medication management and can be more prone to medications errors as they are usually the person administering the medication while working in busy environments. It was found that causes of medication errors were due to nurse fatigue and distraction, poor mathematical skills, pharmacological deficit of nurses, inadequate drug labelling and staff shortages. Medication errors can be prevented by adequate staff levels, an environment open to error reporting, continuing education in medication management, and distraction free zones. Barriers to error reporting are due to fear of reactions from staff and fear of disciplinary action. The essay concludes that a systems approach allowing for non-punitive incident reporting of errors would be more effective at supporting patient safety as opposed to the current culture of individual blame. Also, nurses are responsible and accountable for maintaining competence towards medication management and should practice a more holistic view.

Keywords: Patient, medication, nursing, quality, healthcare.
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1.0 **Introduction**

Over the last fifteen years patient safety and quality in healthcare has become recognised as a serious global health issue with as many as one in ten patients being harmed while in a healthcare setting (World Health Organization, 2014). This should be a cause for major concern for every individual as the majority of people in the Western World will at some stage be a patient or have a significant other as a patient in a healthcare setting. Key aspects of patient safety are to cause no harm to individuals and prevent adverse events while patients are receiving care within a healthcare setting. Patients can experience an adverse event as a result of a medication event, hospital acquired infection, surgical complication or due to a fall (Department of Health and Children, 2008). Subsequently, countries worldwide have reacted to the issue by placing emphasis on initiating policy reform, carrying out legislative changes and developing standards of care towards patient safety (Department of Health and Children, 2008). This essay will discuss the implementation of patient safety initiatives and policies at a national and international level and will then focus on patient safety in relation to medication management. Specific reference will be attributed to the nurses role within medication management, causes and preventive measures of medication errors, prevalence of error reporting and open disclosure with associated barriers to implementation.

2.0 **Main Body**

The evolution of the issue of patient safety and quality as a healthcare policy was brought to global attention by a number of seminal reports, in particular a report by the American Institute of Medicine in 2000 called 'To Err is Human' (Department of Health and Children, 2008). The report outlined that errors occurred when ineffective systems and processes allowed staff to take a route that would lead to
a mistake or hinder them from preventing it. It was suggested in the report that the health system should be designed in a way that made it difficult for staff to do something the wrong way and easier to do it the right way (Institute of Medicine, 1999). As such the international view of patient safety is that it should be treated similar to other high risk industries like the aviation industry (Department of Health and Children, 2008). Alarmingly, common adverse events related to medication events, hospital acquired infections, falls and surgical complications affect 4% to 16% of people in hospital (Department of Health and Children, 2008). In the United Kingdom, medication errors are responsible for 20% of deaths which occurred as a consequence of an adverse events (Cleary-Holdforth and Leufer, 2013). In Ireland, 85,918 adverse events were reported in 2011 to the State Claims Agency with medication errors accounting for 8% for these events (Health Service Executive, 2012a). It is clear that promoting patient safety in medication management and other areas is an important issue as adverse events can lead to mortality, increased hospital admissions, use of scare resources, reduced patient satisfaction and increased cost (Harkanen et al., 2013).

A significant global move towards patient safety was the establishment of the World Health Organization (WHO) World Alliance for Patient Safety in 2004 which has the responsibility for raising awareness and committing to patient safety through cultivation of policies and practice (Department of Health and Children, 2008). One of WHO's simple but effective initiatives for patient safety is the 'five moments of hand hygiene' which outline the stages for requirement of hand hygiene when contact occurs between healthcare professional and patient. Hand hygiene is a simple action that can enhance patient safety by preventing the transfer of healthcare acquired infections (HCAI). HCAI's are detrimental to patients as they can prolong hospital stay, increase disability, lead to resistance of microorganisms to antibiotics and increase stress levels (World Health Organization, 2009). Like the 'five moments of hand hygiene' many current patient safety initiatives are system or professional
orientated with a small amount of focus on involving patients in their own safety. Interestingly, work has been carried out to show that patients who are actively involved in their own safety can positively affect initiatives such as hand hygiene and identity checking prior to medication administration (Tingle, 2013). Another study of interest by Birks et. al. (2012) on promoting patient safety found that patients felt that ultimately patient safety is the responsibility of the system and the professionals who work in it. However, positive responses from healthcare professionals would encourage patients to be more vocal about their healthcare concerns. On the other hand, participants felt that healthcare professionals were not receptive of patients voicing their concerns.

International recognition of patient safety and recent published reports on high profile adverse events in Ireland have led to a request for improvements in clinical quality and patient safety (Department of Health and Children, 2008). In response, the Irish Minister for Health and Children set up The Commission on Patient Safety and Quality Assurance in 2007 to establish proposals which address patient safety and healthcare quality within the Irish system (Department of Health and Children, 2008). By the same token, under the Health Act 2007, the Health Information and Quality Authority (HIQA) was established and given the primary function of setting and monitoring standards of safety and quality within the Irish healthcare system (Department of Health and Children, 2008). In accordance with their function HIQA have developed 'The National Standards for Safer Better Healthcare' which aim for high quality and safe healthcare and are applicable to all public, some HSE funded private facilities and voluntary sectors, however, it has no remit over private healthcare providers (Heath Information and Quality Authority, 2012). HIQA have the legal authority to enter any healthcare service provider under its remit to monitor compliance with the requirement of the National Standards. The activities of HIQA are important to the Irish Healthcare system as the setting of standards and compliance monitoring are crucial factors to improving patient safety and quality (Health
Information and Quality Authority, 2012a). A culture that supports patient safety and quality is one that requires effective governance, clear accountability and leadership from all managerial levels (Health Information and Quality Authority, 2012b).

Notably, risk management was identified as the priority theme that emerged from submissions made to the Commission on Patient Safety and Quality Assurance along with medication safety, clinical governance, audit, evidenced based practice and many others (Department of Health and Children, 2008). Risk management can be described as a clinical governance process that focuses on early identification, monitoring, early management and prevention of clinical incidents that affect patient safety (Johnstone, 2008). As a way of enhancing patient safety, Organisational Risk management authorities can implement quality improvement programs which will target medication errors (An Bord Altranais, 2007). Additionally, clinical audits which are clinically lead processes can be used to provide continuous quality improvement by measuring the clinical care given to clients against evidenced based practice (Department of Health and Children, 2008). On another note, poor clinical governance has been identified as a leading factor in the occurrence of adverse events (Department of Health and Children, 2008). Clinical governance has been described as a system that puts accountability onto healthcare professionals for the safety and quality of patient care (Health Service Executive, 2011). The benefits of effective clinical governance results in patients receiving care in a safe, caring and open setting where the healthcare provider is accountable for provision of clinical care (Health Service Executive, 2012b).

It is well known that a medication event is one of the most common adverse events affecting patient safety (Department of Health and Children, 2008). Medication management in healthcare is a multi-disciplinary function involving nurses, doctors, pharmacists and the patient themselves who all must
work together to ensure patient safety (Cleary-Holdforth and Leufer, 2013). Leufer and Holdforth (2011) have identified that the role of the nurse in medication management has undergone vast change and will continue to expand due to the evolving needs of the modern healthcare system. The nurse has responsibilities of writing prescriptions, calculation, constitution, checking, patient assessment, documentation, administering and patient education along with the core principle of care and safety within medication management. Consequently, nursing staff play a vital role in medication management as they usually administer the medication and are the last line of defense against medication errors (Adhikari et. al., 2014). To support nurses at a national level, An Bord Altranais (2007) has published a document 'Guidance to Nurses and Midwives on Medication Management' which outlines their roles and responsibilities towards medication management within the Irish healthcare system. In addition, the legally enforced concepts of accountability, autonomy, competence and delegation that are the foundation of the Scope of Nursing and Midwifery Practice are synonymous with the nurses role in medication management (An Bord Altranais, 2007). The Code of Professional Conduct for each Nurse and Midwife further corroborates the obligation on nurses to be competent, responsible and accountable practitioners (An Bord Altranais, 2000). Being competent in medication management means that the nurse has the pharmacological knowledge to ascertain that the appropriate drug is being prescribed for the particular patient to suit their clinical needs. Subsequently, it is up to each individual nurse to assess and maintain their own competence towards medication management (Choo et. al. 2010).

The guiding traditional principles of medication management for nursing staff when administering medication to a patient are known as the five 'rights'. The five 'rights' comprise the right medication, right patient, right dosage, right form and the right time. These are very basic principles and will help to ensure patient safety. Some medications such as oral Paracetamol may be prepared and given by
only one nurse but there are those that require double-checking by two nurses during preparation and administration, such as Morphine (An Bord Altranais, 2007). However, the five 'rights' alone are not reflective of the nurses overall responsibility and accountability associated with medication management and will not safeguard against all medication errors, the main function of the five 'rights' is as a checking procedure prior to administration (Choo et. al. 2010). An ethnographic style observational study by Adhikari et al (2014) highlights that the traditional 'five rights' principle does not allow for holistic medication safety for patients. Findings from the study showed that experienced nurses regularly took part in medication reconciliation by addressing prescribing issues promptly however, intern nursing students and newly qualified nurses underestimated the importance of medication reconciliation. Also with the constant introduction of new medications and poly-pharmacy the study revealed that nurses more than ever need to be aware of and monitor adverse effects and have necessary pharmacological knowledge to do so.

Ineffective medication management results in medication errors, which are one of the most common preventable cause of injury to a patient at national and international level (Department of Health and Children, 2008) and they have negative outcomes for patients, families, health professionals and the healthcare system (Choo et. al. 2010). Medication errors made up 10% of the incidents reported to the Clinical Indemnity Scheme in Ireland in 2007 (Department of Health and Children, 2008). An Bord Altranais (2007) summarises a medication error as the inappropriate use or administration of a medication by a healthcare professional that may cause harm or a treat of harm to a client. Medication errors can occur during any stage and be committed by any personnel involved in medication management. Specifically, nurses can be more prone to medication errors as they administer the medication while working in an environment with multiple demands (Choo et. al. 2010). Medication errors occur for a variety of reasons and a descriptive cross sectional study by Unver et. al. (2012)
carried out on newly graduated nurses and experienced nurses found that nurse fatigue and nurse distraction were the leading cause of medication error by nursing staff. Experienced nurses were found to be more confident about what a medication error was. More than half of the nurses admitted to refraining from reporting medication errors due to fear of negative reactions from colleagues. Poor mathematical skills and pharmacological knowledge deficit of nurses is another area that gives cause to medication error (Cleary-Holdforth, and Leufer, 2013). Further contributory factors to medication errors are inadequate drug labelling, incomplete prescription order, staff shortages and disorganised drug cabinets (Leufer and Holdforth, 2011). A similar view on medication errors is presented by Karavasiliadou and Athanasakis (2014) who report that individual and healthcare system factors contribute to medication errors in nursing practice. Individual factors were described as nurses clinical experience, non-compliance of proper principles medication management i.e. five rights, misreading medication label, infusion devices difficulties, physical exhaustion, illegible handwriting on prescription charts and unclear communication between staff. Healthcare system factors amounted from interruptions/distractions during nursing drug rounds, heavy workload with staff shortages and new staff unfamiliar with medications.

Nurse managers are in a position to have an active role in medication safety by ensuring adequate staff levels to prevent nurse fatigue occurring from overtime, creating an environment open to error reporting that blames the system rather than an individual, providing opportunities for continuing education in medication management and maintaining a multi-disciplinary focus on patient safety (Choo et. al. 2010). This argument is supported by Unver et. al. (2012) who concludes that a reduction in long shifts, continuing education for new graduate nurses on medication safety and an open environment that encourages error reporting will assist with medication error prevention. Another study by Harkanen et, al., (2013) also acknowledges that a distraction free zone for medication
administration, education and verifying actions during medication management can all hinder medication errors. Cleary-Holdforth and Leufer (2013) purports that nurses must be encouraged to actively speak out when they are concerned about any area of clinical practice or patient safety. Statistical findings from the study by Hillsden and Fenton (2006) placed emphasis on areas of medication management that needed to be improved to increase patient safety. The study found that during drug administration by nursing staff, 35% of the time was spent dealing with interruptions. Examples of interruptions were given as dealing with direct patient care, communicating with relatives, staffing issues and medications not being available in drug trolley. Poor compliance was noted in multi-professional record keeping as allergies were not recorded on 85% of prescription sheets and 96% of prescription sheets had no date. As a preventative measure against medication errors some hospitals have implemented safety mechanisms such as medication reconciliation, wearing of tabards during administration to reduce interruption, double-checking intravenous medication and medication safety awareness initiatives (Adhikari et. al., 2014)

The reporting and the analysis of errors can lead to increased knowledge on how errors happen. If the reasons behind why preventable errors occur are established then frameworks can be put in place to address the error and minimise or prevent it reoccurring thus increasing patient safety (Department of Health and Children, 2008). A reporting system that is accessible, useful and usable will encourage active participation in error reporting by healthcare staff (Department of Health and Children, 2008). A viable response to the reported error is important as it will help justify time and effort spent by the reporter and will further encourage error reporting (Maamoun, 2006). Within Ireland, The Clinical Indemnity Scheme (CIS) was set up to lead and support risk management development in the Irish healthcare sector and also to share learning gained from the analysis of reported incidents which could ultimately support patient safety. An electronic incident reporting system known as STARSWeb
operated by the CIS is in existence in the Irish healthcare sector and allows staff to report clinical incidents and near misses confidentially, which supports risk management initiatives (Department of Health and Children, 2008). An increase is evident in the reporting of clinical incidents to the CIS via STARSweb as figures have gone from 75,788 in 2008 to 82,509 in 2011 (Duffy, 2012). Many reasons exist as to why errors go unreported and a study by Ulanimo (2007) found that nurses reported fear of managerial/colleague reactions, fear of disciplinary action or potential loss of job as barriers to medication error reporting. A similar study by Schmidt and Bottoni (2003) reported that around half of its participants admitted to none self-reporting of errors or reporting errors of peers due to fear of punishment or loss of job. In order for error reporting to take place effectively a culture of safety must exist within the system which allows participants to share errors comfortably, learn from the mistakes and work as a team to prevent future occurrence (Maamoun, 2006). It is argued that the system approach to errors can encourage error reporting as it has the perspective that the errors occurred due to variables within the healthcare system rather than an isolated human error (Choo et al., 2010). This argument is supported by Anderson and Webster (2001) who advocate that a person-centred blame approach hinders improvement in patient safety while a systems approach which allows for non-punitive incident reporting of errors, near misses and adverse events will be a more effective way to support patient safety.

Equally important is the concept of open disclosure which has been identified as an area that contributes to the effective clinical risk management of errors and adverse events (Johnstone, 2008). Open disclosure is a process of open communication between healthcare professionals and patients and their families when clinical errors or adverse events affect patient safety (World Health Organization, 2005). It is a phenomenon that has been implemented in countries such as the United Kingdom, United States of America and Australia through legislation or national standards. Presently, no national policy
on open disclosure exists in Ireland however, the Commission on Patient Safety and Quality Assurance made a key recommendation that open disclosure of adverse events should be adopted and encouraged (Department of Health and Children, 2008). HIQA in conjunction with WHO World Alliance for Patient Safety are developing guidance towards effective open disclosure (Department of Health and Children, 2008). Barriers to implementation of open disclosure are in existence and findings from an Irish study by Duffy (2012) have identified these as fear of litigation and blame being the most prevalent barrier, a cultural barrier of not questioning the way things are done, fear of disciplinary action and lack of policy/training around how and what to disclose. The study proposed that introduction of protective legislation, implementing standards, staff training and education on open disclosure and publicising patient safety will all contribute towards implementation of open disclosure in the Irish healthcare system. More significantly, Harrison et. al. (2014) revealed that there is limited research into nurses contribution to open disclosure. They revealed that open disclosure was primarily carried out by physicians supported by nurses, however nurses had little opportunity to contribute independently. Barriers to nurse involvement were described as being due to lack of education and training around open disclosure and conflicting roles within nursing.
3.0 Conclusion

In summary, the international opinion of patient safety is that it should be treated like a system where blame is attributed to failures within the system rather than the present culture of blaming an individual when things go wrong, this idea however, does not take away the fact that healthcare professionals are accountable and responsible for their own actions. Many global patient safety initiatives have been introduced to protect patients from harm with emphasis on the initiatives being used by healthcare professionals thereby neglecting to encourage participation of the patients in their own safety. It has been shown that patient involvement can have positive influences on patient safety initiatives and perhaps more work is needed in this area. At a national level patient safety has been addressed by the establishment of authorities which aim to set and monitor standards of care against evidenced based practice. The use of risk management processes and clinical governance all allude to identifying and preventing clinical incidents.

With medication errors being one of the most common adverse events affecting patient safety it is crucial that medication is managed properly. Consequently, nurses must be aware of their extensive responsibilities towards medication management and not rely completely on the traditional principles of the 5 'rights'. Nurses should practice a more holistic view of medication management by participating in medication reconciliation, monitoring for adverse effects after medication administration and maintaining their competence towards medication management. Ineffective medication management leads to medication errors which have been shown to result from both individual and healthcare system factors. Errors can be reduced by having a culture that is open to error reporting that blames the system rather than the individual, continuing education in medication safety, adequate staff resources and reduction in interruptions during drug rounds. Barriers to error reporting such as fear of colleagues reaction or fear of disciplinary action have to be overcome before error
reporting systems can work effectively. The concept of open disclosure can enhance risk management of errors and adverse events by encouraging open communication between healthcare professionals and patients when adverse events occur. Similarly, barriers such as fear of litigation and disciplinary action prevent open disclosure from transpiring. All healthcare professionals involved in the care of a patient should be involved in open disclosure. It is evident from above that patient safety in medication management and other areas relies on the responsibility and competence of all staff involved in patient care. In a perfect world no individual would create errors or cause harm to another person however, as human beings errors are going to arise which calls for the need for systems to be put in place to either prevent the error or anticipate the error to ensure patient safety.
References


