The need for vigilance, effective communication and collaboration in medication management

Maryanne Murphy
Assistant Professor, School of Nursing and Midwifery, Trinity College Dublin

Fiona Timmins
Associate Professor, School of Nursing and Midwifery, Trinity College Dublin
timminsf@tcd.ie

Medication-related activities are an integral part of the daily work of many nurses especially those working in neonatal care. Medication administration is becoming increasingly complex – technological advances are allowing larger numbers of physiologically vulnerable infants to survive on complex drug regimens. It is the responsibility of all nurses to ensure the safe and reliable administration and documentation of medicines, and to monitor and respond promptly to any adverse effects.

It is imperative that nurses are personally vigilant about medication management in the neonatal unit and that systems are in place to prevent, detect and deal appropriately with any errors that do occur. Nurses obviously do not work in isolation, their role in medication management occurs in the context of a partnership between the nurse, doctor and pharmacist as the process involves prescribing, dispensing, administering, receiving and recording. A range of skills is required for the safe administration of medicines including adequate knowledge of the medications, numerical competency, skills required for delivery and up-to-date knowledge on current literature on medicine use in infants. So a nurse must constantly reflect on personal learning needs and be proactive in seeking additional support when required.

While in-service training and updates to medication administration policy and procedures are an important recommendation for neonatal nurses[1], increasingly nurses are expected to be autonomous in their ongoing professional development.

Medication administration is one of the highest risk areas in nursing and medication administration errors are reported to occur in one in five medication dosages[2]. These medication errors include calculating the wrong dose of a medication, administering the wrong medication, administering a medication at the wrong time or via the wrong route and administering the medication to the wrong patient. The consequences of medication error are potentially greater in infants than adults and thus medication administration to infants requires caution and precision. Dosage miscalculation is compounded by[3]:

- complex calculations
- a need to calculate dose on an individual basis (based on age, weight and body surface area)
- limited availability of prescribing information for infants
- a need to use off-label medications
- administration of formulations designed for adults (thus requiring dosage manipulation).

Hospitals are usually very aware of the risk in this area and provide clear written guidelines for nursing staff to help them in their practice and to ensure the safe storage, preparation, administration and record keeping in all aspects of medication practices[1].

It is interruption, rather than lack of knowledge/policy matters, that is the most frequently cited reason for errors[1] and alarmingly, while medication administration is a known high-risk activity, it is among the most interrupted nursing care activity[4]. This factor is increasingly being addressed at clinical sites by the wearing of a high visibility vest/apron during drug administration which advises potential disturbers not to interrupt the nurse.

The medication format may also render it error prone. There can be confusion over trade names, medication packaging or drug names[1], thus nursing staff need to ensure that their specific knowledge of medications used in their units is at a very high level. This can be overcome by raising awareness of medications that look or sound like other medications, prescribing medications by their generic and trade names and placing eye-catching labels/warning stickers. It is also incumbent upon manufactures of medications to clearly label and package their products.

Alongside dosage miscalculation, prescribing errors are major causes of medication error[1,5,6]. Pharmacists play a key role in assuring safe use of medication by monitoring storage of high-alert/confusing medications and educating staff on changes to formulary or new drugs on the market[7]. Pharmacist support, while clearly fundamental in reducing medication risk in neonatal care, varies across establishments[1]. Studies have indicated that the presence of ward-based clinical pharmacists reduce medication errors[8]. A pharmacist is able to detect medication errors at the prescription stage and thus prevent potential harmful medication errors[9], however, nurses need to be aware of drug dosage and actions/interactions and not rely solely on prescriptions.

Other reasons for medication errors in infant nursing include lack of staff, poor knowledge of the drug, equipment failure and poor communication with the doctor/pharmacist[1,6,10]. Indeed medication errors are often caused by communication problems – nurses, conscious of their junior status compared with other staff need to be supported and empowered to speak up if they witness poor practice. In a survey, many junior nurses felt unable to challenge a more senior nurse about a medication error[1]. Thus professional confidence in this area is required. As the infant's advocate, a nurse is duty bound to ensure safe practice and concerns about interpersonal reactions should be less important.

Dialogue, feedback and support are very important factors in the prevention and detection of medication errors in the NICU. It has been suggested that a well-developed system for reporting medication errors allows for vital information to be collected for root cause analysis, which should include a process of feedback to staff who have reported a medication error[11]. It is suggested that risk profile analysis, where specific medications and specific errors are catalogued centrally in an organisation, can identify trends, which can lead to targeting of specific high-risk preparations or activities[6].

Local initiatives need to be in place to monitor, collate, report and feedback on potential and actual medication errors and this feedback loop needs to ensure good communication across the multi-disciplinary team. Additionally, hospital systems need to have high quality communication mechanisms both at practice level, where medications are being administered and at management level when incidents are being investigated.

Recording of incidents of error, or potential incidents is now a more frequent occurrence in the nursing domain[1]. Staff are encouraged to report errors and near-misses and many hospitals have non-punitive policies. However recent evidence suggests that not all medication errors can be dealt with by this light approach, as where severe harm and/or other factors exist a nurse may face disciplinary action and possibly suspension. Ensuring that effective management systems are in place is an essential and key factor in the management of medication errors – reporting and investigation of incidents permits an organisation to understand (and hopefully prevent) the contributing factors.

Although actual harm to infants is rare[5], the reality is that medication errors can and do occur in neonatal care[6]. Local organisations need to examine practical ways in which medication errors can be addressed, which is not always a case of adding additional checking initiatives[1] but rather use of systems that minimise interruptions (such as the visible apron), ensuring effective pharmacy support, labelling high-risk preparations and ensuring the use of legible or printed prescriptions. Interventions to reduce medication errors within the context of risk management programmes are very effective[5] and ought to be proactively used to ensure best practice.

References

1. **Murphy M., While A.** Medication administration practices among children's nurses: a survey. *Br J Nurs* 2012;21:928-33.
2. **Davies L., Ware R.S., McCann D.** Factors influencing paediatric nurses responses to medication administration. *Qual Saf Health Care* 2010;19:1-3.
3. **Conroy S., Davar Z., Jones S.** Use of checking systems in medicines administration with children and young people. *Nurs Child Young People* 2012;24:20-24.
4. **Hedberg B., Satturlund Larson U.** Environmental elements affecting the decision-making process in nursing practice. *J Clin Nurs* 2003; 13:316-24.
5. **Simpson J.H., Lynch R., Grant J., Alroomi L.** Reducing medication errors in the neonatal intensive care unit *Arch Dis Child Fetal Neonatal Ed* 2004;89:F480-2.
6. **Stavroudis T.A., Miller M.R.** NICU Medication: identifying a risk profile for medication errors in neonatal intensive care unit. *J Perinatol* 2010; 30:459-68.
7. **Case L., Paparella S.** Safety benefits of a clinical pharmacist in the emergency department. *J Emerg Nurs* 2007;33:564-66.
8. **Krupicka M., Bratton S., Sonnenthal K.** Impact of a pediatric pharmacist in the pediatric intensive care unit. *Crit Care Med* 2002;30:919-21.
9. **Rothschild J., Churchill W., Erickson A.** Medication errors recovered by emergency department pharmacists. *Ann Emerg Med* 2010;55:513-21.
10. **Armutlu M., Foley M.L., Surette J.** Survey of nursing perceptions of medication administration practices, perceived sources of errors and reporting behaviours. *Healthc Q* 2008;11:58-65.
11. **Mayo A., Duncan D.** Nurse perceptions of medication errors, what we need to know for patient safety. *J Nurs Care Qual* 2004;19:209-17.