

Paediatric and Neonatal Medication Errors

A Position Statement by the Paediatric Nursing Associations of Europe (PNAE)

Scope

The purpose of this position statement is to identify key concepts concerning medication errors in children, to describe the current status or reporting systems at European level and to share measures aimed at reducing medication errors across different European countries.

Introduction

Patient safety has become the pre-eminent issue for health care. The prescribing, dispensing, and administration of medications represents a substantial portion of the preventable medical errors that occur with children. Infants and children are at greater risk of medication errors than adults (NPSA, 2007). The Paediatric Nursing Associations of Europe (PNAE) conducted a survey throughout 2010. The aim was to identify common practice concerning medication errors across Europe and to share measures aimed at reducing medication errors.

Background

Potential adverse drug events due to medication errors occur up to three times more frequently in paediatric than in adult wards (Miller, Robinson, Lubomski, Rinke, Pronovost, 2007). Medication errors may result in morbidity, mortality, increased monitoring and cost of care, and delayed hospital discharge. Nurses are the key participants in the preparation and administration of medication. During their education and training, nurses are taught the Six Rights of medication administration, which are: giving the right medication in the right dose at the right time via the right route to the right patient with the right documentation (Raja Lope, Boo, Rohana, Cheah, 2009). Nevertheless, medication errors are a multidisciplinary issue and a multidisciplinary approach is required in order to reduce the incidence of errors. Interdisciplinary collaboration is required for a rationalism of medicine errors through the creation of a new mindset, change in operational practices and continuous education.

Looking at error reporting systems, it is clear that each step of the medication process is prone to errors, although the majority of research has focused on prescribing errors. Each step (prescribing 3–37%, dispensing 5–58%, administering 72–75%, and documentation 17–21%) contributes to the overall rate of medication errors among children (King et al, 2003; Frey et al, 2002). Literature acknowledges that both active failures and latent conditions remain prevalent. Active failures often display themselves in the form of incorrect drug calculations, lack of individual knowledge, and a failure to follow established protocol. Latent conditions are evidenced as time pressures,

fatigue, understaffing, inexperience, design deficiencies, and inadequate equipment (Carlton, Blegen, 2006).

Today, medication error research has shifted in emphasis towards the identification of inherent system problems and an emphasis on more dependable reporting measures through which nurses are not threatened by reprisal (Carlton, Blegen, 2006). The vast majority of errors result in no harm, or have only very minimal temporary effects. These types of errors represent very important opportunities to identify systems' weaknesses and instigate improvements before serious harm occurs. There is a need for a national reporting system that enables the recording and analysis of errors. Open reporting of medication errors must be encouraged since voluntary error reporting is at the heart of any safety improvement strategy (National Patient Safety Agency, 2007).

Definition of errors

Medication errors are defined as “any preventable event that may cause or lead to an inappropriate medication use or patient harm while in the control of the health care professional, patient or consumer” (NPSA, 2005).

Such events may be related to professional practice, the use of off label medication, health-care products, procedures and systems, including prescribing; order communication; product labelling, packaging and nomenclature; compounding; dispensing; distribution; administration; education; monitoring and use’.

Key areas encompassed within the survey included gathering information about

- Reporting and recording systems
- Factors influencing the reporting of medication errors
- Measures taken to reduce medication errors

Reporting and recording systems

The survey found that some countries had introduced a national recording and reporting system. These included the Switzerland and the United Kingdom. Countries like Belgium reported that such a system was currently under development. Other countries reported that individual hospitals had a reporting system in place.

Factors influencing reporting of medication errors

The most important factors as ranked from PNAE members with a direct effect on the reporting of a medication error, based on their national records, research data and/or experience, were:

- Ease of reporting mechanisms
- Patient safety focus
- Awareness of reporting mechanisms
- Recognition of drug error including what constitutes a medication error
- Hospital policies
- Education level of nurses

Nevertheless, the effect of other factors such as concerns or fear of penalisation, the “Blame culture” and fear of “stigmatisation”, along with the workload and low staffing levels and the different responsibility level of nurses, were also acknowledged.

Reducing medication errors

The most important measures that must be implemented in order to reduce medication errors as ranked by PNAE members, based on their national experience and a thorough literature research were:

- Establishing set standards for drug and infusion storage, preparation and administration
- Introducing different coloured syringes for IV and oral medications
- Clear policies and protocols for single and double checking of medications
- Prescriptions written using generic names
- Education and training (specific education for nurses caring for neonates and children) and for the use of infusion devices
- Barcode medication administration system and/or bracelet identification and systematic control of administration to the right patient
- Different levels of control before the drug administration

A number of specific measures that had been implemented in some countries were noted to have led to a substantial decrease in the level of medication errors. The most important of these measures included the wearing of a red tabard to reduce interruptions and distractions during medication checking and administration, drug preparation by specialists (Ward and unit based pharmacists), the implementation of a national record of drug effects, specific checklists for medication administration and special alert systems and electronic administration. The systematic evaluation of health professionals' ability to calculate doses was also stressed as a key measure.

Key note

Paediatric Nurses should be leading in the reduction of medical errors and adverse drug events in children since they are not only responsible for a number of them but mainly because they stand as the last line of defence in preventing them.

End note

This document represents a consensus position of the organisations representing paediatric nurses across many European countries (PNAE*). PNAE strongly recommends that all European countries should give consideration to the key points raised in the position statement and explore implementation of measures to reduce medication errors

(http://www.rcn.org.uk/development/communities/specialisms/children_and_young_people/forums/other_forums_and_groups/paediatric_nursing_associations_of_europe).

Useful websites for further information include:

<http://www.npsa.nhs.uk/nrls/medication-zone/>
www.nmc-uk.org

www.rcn.org.uk

Key stakeholders

Professional nursing association/organisation in each member state

EU and individual governments of member states

EFN

FePI

HOPE

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References

1. Raja Lope RJ, Boo NY, Rohana J, Cheah FC. A quality assurance study on the administration of medication by nurses in a neonatal intensive care unit. *Singapore Med J.* 2009 Jan;50(1):68-72.
2. Miller MR, Robinson KA, Lubomski LH, Rinke ML, Pronovost PJ. Medication errors in paediatric care: a systematic review of epidemiology and an evaluation of evidence supporting reduction strategy recommendations. *Qual Saf Health Care.* 2007 Apr;16(2):116-26.
3. Frey B, Buettiker V, Hug MI, et al. Does critical incident reporting contribute to medication error prevention? *Eur J Pediatr* 2002;161:594–9.
4. King WJ, Paice N, Rangrej J, et al. The effect of computerized physician order entry on medication errors and adverse drug events in pediatric inpatients. *Pediatrics* 2003;112:506–9.
5. O'Shea E. Factors contributing to medication errors: a literature review. *J Clin Nurs.* 1999 Sep; 8(5):496-504.
6. The National Patient Safety Agency. Patient safety. *Arch Dis Child* 2005;90:226-228
7. Carlton G, Blegen MA. Medication-related errors: a literature review of incidence and antecedents. *Annu Rev Nurs Res.* 2006;24:19-38.
8. National Patient Safety Agency. Safety in doses. Medication safety incidents in the NHS. Fourth report from the patient safety observatory, 2007. London.