

Erratum: Abstracts from 12th NPPG Conference

Unfortunately there was an error in one of the abstracts from the Neonatal and Paediatric Pharmacists Group's 12th Annual Conference published in Volume 7, Issue 4 in 2006.

Abstract O3 was presented by Andy Fox.

O3

Using failure mode and effect analysis (FMEA) to reduce the risk of IV potassium administration on a paediatric intensive care unit (PICU)

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Background: Failure mode and effect analysis (FMEA) is a quality improvement tool that was developed in the 1960s by the aerospace industry. It has since been modified for use in several other areas including the healthcare setting^{1,2}. FMEA can be used to identify the potential errors in a process and then try and determine their effects in a proactive way.

Southampton University Hospital Trust is a large teaching hospital. Its PICU deals with about 700 admissions each year, of which approximately a third are post cardiac surgery. Many of the patients require potassium supplementation using the intravenous route. Currently this is administered by diluting strong potassium chloride injection to a concentration of 1mmol/ml and then the appropriate dose given as small boluses over an appropriate period via a central line.

Following an error in potassium administration relating to an equipment malfunction we decided to take the opportunity to look at the system in more detail using FMEA.

Methods: A multidisciplinary group was convened and we dissected in great detail the process of potassium supplementation. It was agreed to split the process into the following stages:

- Prescribing
- Dilution of the injection
- Administration
- Monitoring

For each part of the process we agreed on what failures could occur, what the causes of those failures could be and the effects this could have on the patient i.e. a failure mode and effect.

Then we scored each failure for likelihood of occurring, severity and likelihood of detection. These scores were then multiplied out and the failures ranked. By highlighting the parts of the process with the greatest risk we have been able to prioritise areas for particular attention.

Conclusion: The process has allowed a multidisciplinary team to openly question the way potassium is used on our PICU and we hope this will lead to reducing the risk for our patients.

References

1. Cohen MR, Senders J, Davis NM. Failure mode and effect analysis: a novel approach to avoiding dangerous medication errors and accidents. *Hosp Pharm* 1994; 29: 319–330.
2. Kunac DL, Reith DM. Identification of priorities for medication safety in neonatal intensive care. *Drug Safety* 2005; 28: 251–261.

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