



This study aims to achieve consensus on defining as medication errors a range of either technology-generated, or previously unaddressed infusion-related scenarios, common in the paediatric intensive care setting” Howlett et al (2019).

Abstract:

**BACKGROUND:** The use of health information technology (HIT) to improve patient safety is widely advocated by governmental and safety agencies. Electronic-prescribing and smart-pump technology are examples of HIT medication error reduction strategies. The introduction of new errors on HIT implementation is, however, also recognised. To determine the impact of HIT interventions, clear medication error definitions are required. This study aims to achieve consensus on defining as medication errors a range of either technology-generated, or previously unaddressed infusion-related scenarios, common in the paediatric intensive care setting.

**METHODS:** This study was conducted in a 23-bed paediatric intensive care unit (PICU) of an Irish tertiary paediatric hospital. A modified Delphi technique was employed: previously undefined medication-incidents were identified by retrospective review of voluntary incident reports and clinical pharmacist interventions; a multidisciplinary expert panel scored each incident using a 9-point Likert scale over a number of iterative rounds; levels of agreement were assessed to produce a list of medication errors. Differences in scoring between healthcare professionals were assessed.

RESULTS: Seventeen potential errors or 'scenarios' requiring consensus were identified, 13 of which related to technology recently implemented into the PICU. These were presented to a panel of 37 participants, comprising of doctors, nurses and pharmacists. Consensus was reached to define as errors all reported smart-pump scenarios (n = 6) and those pertaining to the pre-electronic process of prescribing weight-based paediatric infusions (n = 4). Of 7 electronic-prescribing scenarios, 4 were defined as errors, 2 were deemed not to be and consensus could not be achieved for the last. Some differences in scoring between healthcare professionals were found, but were only significant ( $p < 0.05$ ) for two and three scenarios in consensus rounds 1 and 2 respectively. CONCLUSION: The list of medication errors produced using the Delphi technique highlights the diversity of previously undefined medication errors in PICU. The increased complexity of electronic-prescribing processes is evident from the difficulty in achieving consensus on those scenarios. Reducing ambiguity in defining medication errors should assist future research on the impact of HIT medication safety initiatives in critical care. The increasing use of HIT and associated new errors will necessitate further similar studies.

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Reference:

Howlett, M.M., Cleary, B.J. and Breatnach, C.V. (2019) Defining electronic-prescribing and infusion-related medication errors in paediatric intensive care - a Delphi study. BMC Medical Informatics and Decision Making. 18(1), p.130.

doi: 10.1186/s12911-018-0713-8.

