

**Insights from the sharp end of intravenous medication errors: implications for infusion pump technology.**(includes abstract); Husch M; Sullivan C; Rooney D; Barnard C; Fotis M; Clarke J; Noskin G; Quality & Safety in Health Care, 2005 Apr; 14 (2): 80-6 (journal article - research, tables/charts) ISSN: 1475-3898 PMID: 15805451 CINAHL AN: 2009127388

Abstract: **BACKGROUND:** Intravenous (IV) medication errors are a common type of error identified in hospitals and can lead to considerable harm. Over the past 20 years there have been several hundred FDA reported incidents involving IV pumps, many of which have led to patient deaths. **OBJECTIVE:** To determine the actual types, frequency, and severity of medication errors associated with IV pumps. To evaluate the likelihood that smart pump technology without an interface to other systems could have prevented errors. **METHODS:** Using a point prevalence approach, investigators prospectively compared the medication, dose, and infusion rate on the IV pump with the prescribed medication, doses, and rate in the medical record. Preventability with smart pump technology was retrospectively determined based on a rigorous definition of currently available technology. **RESULTS:** A total of 426 medications were observed infusing through an IV pump. Of these, 285 (66.9%) had one or more errors associated with their administration. There were 389 documented errors overall; 37 were "rate deviation" errors and three of these were judged to be due to a programming mistake. Most of the documented events would not have caused patient harm (NCC MERP category C). **Only one error would have been prevented by smart pump technology without additional interface and software capabilities.**

**CONCLUSION:** Medication errors associated with IV pumps occur frequently, have the potential to cause harm, and are epidemiologically diverse. Smart pumps are a necessary component of a comprehensive safe medication system. However, **currently available smart pumps will fail to generate meaningful improvements in patient safety until they can be interfaced with other systems such as the electronic medical record, computerized prescriber order entry, bar coded medication administration systems, and pharmacy information systems. Future research should focus on the effectiveness of new technology in preventing latent and active errors, and on new types of error that any technology can introduce.**