Many studies have highlighted the patient safety risks in intravenous medication administration, and various technological solutions have been proposed to mitigate those risks, including ‘smart pumps’ and closed-loop systems” Furniss et al (2019).

Abstract:

Many studies have highlighted the patient safety risks in intravenous medication administration, and various technological solutions have been proposed to mitigate those risks, including ‘smart pumps’ and closed-loop systems. Few studies describe these implementations in detail. In this article, we report on a sociotechnical investigation of a closed-loop documentation system linked with smart pumps for intravenous infusion administration on an intensive care unit. The smart pumps are ‘mapped’ to an electronic prescribing and medication administration system, allowing infusion rates, volumes and boluses of intravenous medication to be monitored in real time. Ethnographic observations were conducted over 37 h, including direct observation of infusion administration (n = 23 infusions), discussions with clinical staff and semi-structured interviews with intensive care unit managers (n = 2). Analysis was based on the Distributed Cognition for Teamwork (DiCoT) method to understand how information is processed across individuals, teams and technologies. We report on how the system works in context, and identify contributions and compromises to patient safety with new risks that need to be managed at bedside and intensive care unit level.

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