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Mini Review

CONFIRMATION OF THE MEDICATIONS USED DURING ANAESTHESIA

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ABSTRACT

To help prevent drug errors, it is recommended that drugs should be checked with a second person before administration. We aimed to assess the feasibility of introducing second-person or electronic bar-code confirmation of drugs, administered during anaesthesia, in the National Health Service (NHS) settings. Drug errors during anaesthesia remain a serious cause of iatrogenic harm .The white paper 'Building a safer NHS for patients'9 recommends that ideally, all drug administration should be checked by two qualified practitioners. Several publications suggest that errors can be reduced through double-checking. A review of strategies for preventing drug errors during anaesthesia concluded that double-checking could have prevented 58% of the errors, which made it the most effective single measure. The need to double-check to prevent drug errors during anaesthesia has been strongly emphasized. However, the use of double-checking as a process to reduce drug errors continues to be disputed because of the variability in, and paucity of, rigorous conclusive research evidence of its effectiveness. A recent study concluded that double-checking medicines should be a selective and systematic procedure informed by key principles and encompassing certain behaviours learned from psychological research and aviation industry.

Keywords: Psychological; Anaesthesia; NHS

INTRODUCTION

In an independent review of serious adverse incidents in oncology practice, the author has strongly recommended the use of an explicit appropriately configured verbal double-checking safety protocol, which, if done correctly, would reduce drug preparation and administration errors. An integrated drug administration and automated anaesthesia record system which utilizes bar-code technology to provide a computerized confirmation of the label that is 'rapid, accurate and not subject to human suggestibility' has been developed. We used qualitative research methods. In patient safety meetings, held at the Royal College of Anaesthetists, delegates were invited to participate. A pragmatic approach of purposive sampling was used to select anaesthetists from those who volunteered. They represented a range of NHS secondary and tertiary referral centre Hospitals, geographically spread across England and Wales. Anaesthetists from seven NHS Trusts were selected. Two of these Trusts were identified as having a technology-based system (integrated drug administration and automated anaesthesia record system which utilizes bar-code technology)

installed and five Trusts were identified to use the two-person confirmation protocol[1,2].

DISCUSSION

Approval was granted by a multi-domain Ethics Committee and local NHS research governance was gained at all sites. It was left up to the lead participant at each site to identify other anaesthetists who were willing to participate. A total of 36 consultant anaesthetists and three trainee anaesthetists, 15 Operating Department Practitioners (ODPs), and seven anaesthetic nurses participated. Each participant was sent a letter of invitation and information sheet and signed a consent form before taking part. At the two sites assigned to use the technology-based system, a specific label that contained a bar code identifying the drug was used. The label was placed onto the syringe after drawing up the drug, and the computer-assisted bar-code reader was used to 'confirm' drugs before administration. Hence, the first flow chart was used to draw up the drug, and the electronic system was used during administration. The electronic system has been designed specifically for use within anaesthesia with the aim of reducing the error in drug administration and record keeping.Scanning the bar-coded syringe produces audible and visual drug confirmation, while at the same time the name of the drug and the dose administered are entered into an electronic anaesthetic record. The system also utilizes barcodes to enter anaesthetic events on the record, such as the start of surgery or the size and placement of the cannula. The electronic system gathers physiological data directly from the patient monitor via the serial connector. A real-time anaesthetic record is produced from these data, and any further information that is entered via the bar code reader. Independent observation was provided by a number of anaesthetists, theatre nurses and ODPs working in NHS Hospital Trusts not participating in the pilot. The independent observers were recruited through RCoA, the College of ODPs, and the Association for Perioperative Practice. They were randomly allocated to observe the two-person confirmation and the electronic bar code confirmation during the 3 month study period. Each person visited two pilot sites and observed both methodologies. In addition, two members of the study team made independent observations of the conduct of the study at all the sites, and this allowed for comparisons and internal validity checks on the data collected. All observers were provided with instructions and a schedule to record observations in order to promote consistency. The observers were asked to transcribe the detailed notes taken during the observation period immediately afterwards [3-5].

At the end of the 3 month study period, a total of four focus groups were held. Two focus groups, consisting of anaesthetists (n=5), ODPs (n=3), and anaesthetic nurses (n=3) from the participating pilot sites were conducted within 2 weeks of the end of the study. The other two focus groups, each with four to five independent observers, were conducted within 2 weeks of the completion of all observations. One of the authors moderated the groups and another took notes. Before the start of the focus groups, a brief outline was given of the format of questions. We used the SWOT format to focus on Strengths, Weaknesses, Opportunities, and Threats of both methods of confirming drug administration in relation to patient safety. All participants were assured of confidentiality and anonymity. A digital recorder was used to tape all discussions. Pre-defined questions and prompts were used to ensure continuity across all focus groups. The discussions were continuously taped and transcribed by one of the researchers within 7–10 days of completing each focus group. The finished transcripts were read through and checked against the original recordings by an

independent researcher for accuracy and integrity; any further comments were added at this stage. One of the main benefits was the ability to check the drug without a second person being present. The system itself was found to be easy to use and effective. Another perceived benefit noted by many of the participants was the automated electronic record that the technology-based system produced [6].

CONCLUSION

The ability to view the anaesthetic record in advance in areas such as the recovery unit was perceived to be immensely important. In summary, the introduction of two-person drug confirmation was found to be difficult to achieve, at times, due to staff availability and its reliance on time being allocated for the process to take place unhindered. If this check was to be introduced in the NHS, it would have a significant impact on the existing working practices of the anaesthetist, and issues related to resource and cultural change will need to be addressed for it to be successful. Electronic confirmation, on the other hand, is more feasible as it is not reliant on a second person to be available and is more intuitive to the anaesthetist's current working practice. It allows the anaesthetist to remain as an independent practitioner being able to give the drug when they want to give it and not when a colleague is available to check. For it to be effective, technological aspects of making its integration into the operating theatre environment will require further attention.

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