

Study shows that clinical decision support software can prevent 95% of medication errors in the operating room

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A new study by investigators from Massachusetts General Hospital

reveals that computer software that helps inform clinicians' decisions about a patient's care can prevent 95% of medication errors in the operating room. The findings are [reported](#) in *Anesthesia & Analgesia*.

"Medication errors in the operating room have high potential for patient harm," said senior author Karen C. Nanji, MD, MPH, a physician investigator in the Department of Anesthesia, Critical Care, and Pain Medicine at Massachusetts General Hospital and an associate professor in the Department of Anesthesia at Harvard Medical School. "Clinical decision support involves comprehensive software algorithms that provide evidence-based information to clinicians at the point-of-care to enhance [decision-making](#) and prevent errors."

"While clinical decision support improves both efficiency and quality of care in operating rooms, it is still in the early stages of adoption," added first author Lynda Amici, DNP, CRNA, of Cooper University Hospital (who was at Massachusetts General Hospital at the time of this study).

For the study, Nanji, Amici, and their colleagues obtained all safety reports involving medication errors documented by anesthesia clinicians for surgical procedures from August 2020 to August 2022 at Massachusetts General Hospital. Two independent reviewers classified each error by its timing and type, whether it was associated with patient harm and the severity of that harm, and whether it was preventable by clinical decision support algorithms.

The reviewers assessed 127 safety reports involving 80 medication errors, and they found that 76 (95%) of the errors would have been prevented by clinical decision support. Certain error types, such as wrong medication and wrong dose, were more likely to be preventable by clinical decision support algorithms than other error types.

"Our results support emerging guidelines from the Institute for Safe Medication Practices and the Anesthesia Patient Safety Foundation that recommend the use of clinical decision support to prevent medication errors in the operating room," said Nanji.

"Massachusetts General Hospital researchers have designed and built a comprehensive intraoperative clinical decision support software platform, called GuidedOR, that improves both quality of care and workflow efficiency. GuidedOR is currently implemented at our hospital and is being adopted at additional Mass General Brigham sites to make surgery and [anesthesia](#) safer for patients."

Nanji noted that future research should include large multi-center randomized controlled trials to more precisely measure the effect of clinical decision [support](#) on [medication errors](#) in the [operating room](#).

More information: Lynda D. Amici et al, Clinical Decision Support as a Prevention Tool for Medication Errors in the Operating Room: A Retrospective Cross-Sectional Study, *Anesthesia & Analgesia* (2024). [DOI: 10.1213/ANE.00000000000007058](https://doi.org/10.1213/ANE.00000000000007058)

Provided by Massachusetts General Hospital

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