

# Researchers find novel means of flagging inpatient pharmacy orders for intervention

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Medication order errors are a significant, and preventable, public health problem. The widespread deployment of electronic health records and computerized order entry systems has largely reduced medication order

errors and inefficiencies in the inpatient setting. Emerging research suggests, however, that they have also introduced new sources of error related to the interaction between the provider and the platform.

While, for [medication](#) order errors, manual review of incoming pharmacy orders is the "gold standard" for improving the use of medications and minimizing prescribing errors, the manual review of medication orders by hospital-based [clinical pharmacists](#) and the computerized ordering of medication by physicians may be affected by such factors as alert fatigue, potentially leading to medical errors.

To begin to address these errors and inefficiencies, a team led by Martina Balestra, a former post-doc and an adjunct professor at the Center for Urban Science and Progress (CUSP) at the NYU Tandon School of Engineering, and including Oded Nov, professor of technology management and innovation at NYU Tandon, as well as Ji Chen, Eduardo Iturrate, and Yindalon Aphinyanaphongs of NYU Grossman and NYU Langone, developed a [machine learning model](#) to identify medication orders requiring pharmacy intervention using only provider behavior and other contextual features that may reflect these new sources of inefficiencies, rather than patients' medical records.

Their work, "Predicting inpatient pharmacy order interventions using provider action data," recently published in JAMIA Open, used a major metropolitan hospital system as a case study. The team collected data on providers' actions in the EHR system and pharmacy orders. With this dataset, the researchers then constructed a machine-learning based classification [model](#) to identify orders more likely to require pharmacist intervention.

Whereas previous models predicting medication order errors ingest data from patients' medical records, the classification model developed by the team focuses on clinicians' data. As such, the risk to the privacy and

security of patient data is reduced. With proper tuning, this and similar models could significantly alleviate the workload of pharmacists and increase patient safety.

**More information:** Martina Balestra et al, Predicting inpatient pharmacy order interventions using provider action data, *JAMIA Open* (2021). [DOI: 10.1093/jamiaopen/ooab083](https://doi.org/10.1093/jamiaopen/ooab083)

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