Handwritten opioid prescriptions contain more mistakes than those that are electronically generated

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Credit: Susan Buck Ms/Public Domain

In a small study of opioid prescriptions filled at a Johns Hopkins Medicine outpatient pharmacy, researchers found that handwritten orders for the drugs contribute to a disproportionate number of prescribing and processing errors compared to prescriptions created electronically.

The quality improvement study, described in a report published in the January/February issue of *The Journal of Opioid Management*, aimed to determine whether and how prescription processing methods contribute to variations, inconsistencies, and errors in opioid distribution.

Overall, the investigators found that 92 percent of handwritten prescriptions either failed to meet ideal practice standards, contained such errors as the absence of at least two patient identifiers, or failed to comply with federal opioid prescription rules.

"Mistakes can be made at any point in the prescribing, transcribing, processing, distribution, use, and monitoring of opioids, but research has rarely focused as we have on prescribing at the time of hospital discharge or on written prescriptions prescribed for adults," says Mark Bicket, assistant professor of anesthesiology and critical care medicine, and the paper's lead author. "There are the normal legibility issues you would suspect with a handwritten prescription, but we also commonly found things like missing patient identification information and errors in abbreviations."

For the study, the researchers reviewed all prescriptions for opioid medications for patients 18 and older processed at an outpatient pharmacy at The Johns Hopkins Hospital for 15 consecutive days in June 2016. In total, 510 prescriptions were evaluated based on three criteria:

- Their compliance with "best practice" guidelines for prescription writing compiled from past studies at the Johns Hopkins

Children's Center, including criteria such as legibility, date, and pill quantity
- The presence of at least two patient identifiers, including medical record number, Social Security number, and date of birth
- Compliance with the U.S. Drug Enforcement Administration's rules regarding prescriptions of controlled substances, which require the patient's full name and address

Of the 510 prescriptions studied, 42 percent contained some error, researchers found. While both the handwritten prescriptions, which made up 47 percent of the total, and prescriptions created by the electronic health system failed to properly meet the DEA's standard at the same rate, all prescriptions that violated best practice or did not include at least two patient identifiers were handwritten.

Overall, 89 percent of prescriptions written by hand deviated from "best practice" guidelines or were missing at least two forms of patient identification information. Not a single prescription created by the hospital's electronic prescribing system showed these errors. Because the computer prints prescriptions using a template that aligns with "best practices," the only step the prescriber must do after reviewing the prescription is sign the prescription.

Bicket emphasizes that errors in prescriptions rarely result in patients getting the wrong drug or dosage because other safety measures are in place, such as pharmacists double checking the prescription information including the drug name, indication, and amount.

"What we hope our results do is get more practitioners to adopt electronic prescribing systems," Bicket says, "because we have a duty to practice in a way that has the lowest chance of harm to our patients."

More information: An analysis of errors, discrepancies, and variation

in opioid prescriptions for adult outpatients at a teaching hospital. *Journal of Opioid Management*, DOI: dx.doi.org/10.5055/jom.2017.0367