
Outpatient Electronic Prescribing Systems Don't Cut out Common Mistakes, Study Suggests

Outpatient electronic prescribing systems don't cut out the common mistakes made in manual systems, suggests research published online in the Journal of the American Medical Informatics Association (JAMIA).

And not all systems are the same: some perform worse than others, the study shows.

The rapid adoption of electronic prescribing systems has in part been fuelled by the belief that they would reduce the sorts of errors commonly made in manual prescribing systems, the authors say. The authors base their findings on an analysis of just under 4,000 computer generated prescriptions received by a commercial pharmacy chain in three different US states over a period of four weeks in 2008.

They looked at the number of mistakes made and their potential to cause harm, as well as the frequency of particular mistakes and whether these were associated with one type of system. Of the 3,850 prescriptions assessed, more than one in 10 (452; just under 12%) contained a total of 466 errors. Of these, a third (163; 35%) were deemed to be potentially harmful.

Mistakes were classified as: "significant," but posing little serious threat to life, such as rash, headache, or diarrhea; serious but not life threatening, such as low blood sugar (hypoglycaemia), reduced heart rate (bradycardia), and fainting (syncope); and life threatening if not treated, such as heart attack and respiratory failure. Among the 163 potentially harmful errors, over half (58%) were significant and the remainder (42%) were serious. None was life threatening.

Four out of 10 medication errors involved anti-inflammatory drugs and antibiotics (anti-infectives), and the most common types of drugs associated with errors were nervous system drugs (27%), cardiovascular drugs (13.5%), and anti-inflammatories/antibiotics (12.3%). The prevalence of prescribing errors varied considerably, depending on the system used, ranging from 5% to 37% among the 13 systems analysed. The frequency of certain types of errors was also associated with particular systems.

For example, in system A, omitting to specify length of treatment and dose were common, and "miscellaneous" errors accounted for more than one in four mistakes (27%). And while system B's error rate was less than that of system G, system B incurred substantially more potentially harmful errors. Around 60% of errors related to missing information, which the authors suggest should be relatively easy to eliminate by some judicious tweaking or providing better training for the users.

Options might include "forcing functions" which would not allow a prescription to be completed if certain information were missing; decision support systems, such as maximum dose checks; and calculators, they say. "Providers appear to be rapidly adopting electronic health records and computerised prescribing, and one of the major anticipated benefits is expected to be through medication-error reduction," they write.

But they warn: "Implementing a computerised prescribing system without comprehensive functionality and processes in place to ensure meaningful use of the system does not decrease medication errors.

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K. C. Nanji, J. M. Rothschild, C. Salzberg, C. A. Keohane, K. Zigmont, J. Devita, T. K. Gandhi, A. K. Dalal, D. W. Bates, E. G. Poon. Errors associated with outpatient computerised prescribing systems. Journal of the American Medical Informatics Association, 2011; DOI: 10.1136/amiajnl-2011-000205

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