

Commercial electronic prescribing systems can reduce medication errors in hospital patients

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A study published in this week's *PLoS Medicine* shows that commercial electronic prescribing systems (commonly known as e-prescribing, in which prescribers use a computer to order medications for their patients through a system with the help of prompts, aids, and alerts) could substantially reduce prescribing error rates in hospital in-patients.

In the study, led by Professor Johanna Westbrook from the University of New South Wales in Sydney, Australia, the authors studied the introduction of the Cerner Millennium e-prescribing system into one ward in one [hospital](#) (Hospital A), and used three other wards as controls. At another hospital, the authors compared the error rates on two wards before and after the introduction of the e-prescribing system iSoft MedChart.

The study looked at both procedural (e.g., incomplete, unclear medication orders) and clinical (e.g., wrong dose, wrong drug) orders, and rated the severity of the [errors](#) (minor to serious). The researchers found that on the three intervention wards where an e-prescribing system was implemented the procedural prescribing error rates fell by over 90%.

The researchers found that serious clinical errors declined significantly by 44% on the three wards that used the e-prescribing system whereas the serious clinical error rate fell by 16.7% in control wards that did not

get the system.

The overall rate of clinical errors (those rated as minor to serious combined) did not fall due to the fact that the e-prescribing systems unwittingly introduced some new types of errors called "system-related errors." These included, for example, when a prescriber accidentally selected the wrong drug from a drop-down menu item. These system-related errors accounted for 35% of errors occurring in the intervention wards.

These findings are important as [medication errors](#) using hand-written scripts (for example, prescribing the wrong drug or giving a drug by the wrong route), frequently occur in health-care settings and are responsible for thousands of deaths every year.

The authors admit that the study has limitations, such as the lack of randomization and lack of control wards in Hospital B, but conclude: "Implementation of these commercial e-prescribing systems resulted in significant reductions in prescribing error rates with a significant decline in serious errors observed."

The authors note: "System-related errors require close attention as they are frequent, but are potentially remediable by [system](#) redesign and user training."

The authors add: "Importantly, the results highlight the need to continually monitor and refine the design of these systems to increase their capacity to improve both the safety and appropriateness of medication use in hospitals."

More information: Westbrook JI, Reckmann M, Li L, Runciman WB, Burke R, et al. (2012) Effects of Two Commercial Electronic Prescribing Systems on Prescribing Error Rates in Hospital In-Patients:

A Before and After Study. *PLoS Med* 9(1): e1001164.
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