

Digital processing system avoids 17.4 million drug errors in US in one year

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Processing a prescription through an electronic ordering system can halve the likelihood of a drug error, and avert more than 17 million such incidents in US hospitals in one year alone, indicates research published online in the *Journal of the American Medical Informatics Association*.

And if much more widely adopted than at present, the system has the potential to cut out 50 million drug errors a year, calculate the researchers.

The US Institute of Medicine estimates that, on average, at least one mistake will be made with a [hospital](#) patient's medication every day.

Computerised provider order entry systems, or CPOE for short, process prescriptions or test requests electronically, sending them directly to the relevant individual/department.

They aim to improve quality and safety by avoiding the need to rely on handwritten instructions, and by providing inbuilt checks on doses and potentially harmful interactions with other medications, so cutting down on the risk of mistakes.

The researchers systematically analysed the published evidence on the impact of CPOE on hospital drug errors and combined this with data on the adoption of CPOE by hospitals and the volume of medication orders processed, using several reliable sources.

These included the 2006 American Society of Health System Pharmacists Annual Survey, the 2007 American Hospital Association (AHA) Annual Survey (4701 hospitals in total), and the Association's own data on uptake of [electronic health records](#).

The final analysis calculated the estimated reduction in drug errors for 2008. It showed that CPOE halves the likelihood of a drug error. And when put in the context of the number of US hospitals that had adopted the system by 2008, the authors calculated that it cut these errors by 12.5% nationally.

That equates to around 17.4 million drug errors avoided in 2008 alone, they say.

Yet the AHA survey indicated that only one in three acute care hospitals had adopted CPOE by 2008. Larger, urban, and teaching hospitals were significantly more likely to have done so.

Those hospitals that had adopted the system were enthusiasts, with almost four out of 10 respondents saying that they processed 90% of their orders this way.

But a significant proportion (42%) said they used it less than half the time, equating to around a quarter of all medication orders processed by CPOE across the board, say the authors.

"Despite CPOE systems' effectiveness at preventing medication errors, adoption and use in US hospitals remains modest," write the authors, adding that "great potential" remains to cut the tally of drug errors still further.

"If all US hospitals adopted CPOE, assuming constant implementation levels of around 60%, 51 million medication errors per year could be

averted compared with what would have been expected without CPOE," they say.

More information: Reduction in medication errors in hospitals due to adoption of computerized provider order entry systems, Online First, [doi 10.1136/amiajnl-2012-001241](https://doi.org/10.1136/amiajnl-2012-001241)

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