Do pharmacists' presence on rounding teams reduce preventable adverse drug events in hospital general medical units?

Kucukarslan SN, Peters M, Mlynarek M, Nafziger DA. Pharmacists on rounding teams reduce preventable adverse drug events in hospital general medicine units. *Arch Intern Med* 2003;163:2014-8.

Background: Pharmacists on rounding teams in intensive care units (ICUs) reduce adverse drug events. However, there are no studies of the impact of including pharmacists on rounding teams in non-ICU settings.

Design: In this single-blinded nonrandomized controlled trial, patients received care from either a rounding team that included a pharmacist (study group) or a rounding team without a pharmacist (control group). Follow-up was for the duration of hospitalization. The primary outcome measure was preventable adverse drug events, defined as undesirable reactions to medications that may have been prevented by appropriate drug selection or management. Two senior pharmacists and a physician, unaware of the treatment assignment, assessed each case for preventable adverse drug events.

Results: A total of 165 patients were included in the study: 86 in the study group and 79 in the control group. Pharmacists provided 150 interventions during the rounding process, 147 of which were accepted by the physicians. The most common interventions involved recommendations for dosage or frequency adjustments and for the addition of an indicated drug. There were 11 preventable adverse drug events: 2 in the study group and 9 in the control group ($p = 0.02$). The reliability of the reviewers for identifying such events was high ($\kappa = 0.71$–0.87). The length of stay, drug charges and readmission rates did not differ significantly between the 2 groups.

Commentary: Preventable adverse drug events were significantly reduced in the study group, and physicians were receptive to pharmacists' suggestions. Similar benefits were observed in a previous study of pharmacist participation on rounds in an ICU setting.[1] Inadequate dissemination of drug knowledge to physicians is a leading cause of preventable adverse drug events,[2] so pharmacist expertise on rounds is a logical preventive "treatment." Of interest, study pharmacists frequently identified and addressed errors of omission. As a result, drug charges were slightly higher in the study group than in the control group. One important limitation is that the intervention ward had 2 pharmacy staff during the study period, whereas the control ward had only 1. Therefore, the observed benefits may be explained by better staffing rather than simply by better teamwork.

This study raises the intriguing possibility that a pharmacist on a rounding team may be more effective than computerized physician order entry (CPOE). One recent review concluded that CPOE substantially reduced medication error rates (by about 80%),[3] but studies have not been powered to detect differences in preventable adverse drug events. By contrast, this is the second study to show a significant reduction in preventable adverse drug events because of pharmacist participation on rounds. Physicians may be more receptive to a friendly pharmacist than to a computer workstation, and pharmacist attendance on rounds involves less of a system change than a new CPOE system.

Practice implications: This small study from a single hospital cannot be used to make broad recommendations to change practice. However, promoting close teamwork with a pharmacist is unlikely to lead to harm or unintended negative consequences. The main barriers are staffing, competing demands and coordination of daily work schedules. Enthusiastic physicians should consider inviting their ward pharmacist on rounds for a couple of weeks, keeping a list of all of the recommendations made. Following this "intervention," the team can estimate the potential harm averted and time saved by intercepting problem orders. This simple exercise may provide enough local data to inform a change in practice while we await larger confirmatory studies.

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References

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