

Why most interventions to improve physician prescribing do not seem to work

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It is well established that the quality of physician prescribing is suboptimal.¹⁻⁵ Elderly patients are at risk of potentially inappropriate prescribing because of their need for polypharmacy, increased susceptibility to adverse reactions, greater comorbidity and exposure to multiple prescribers as a result of fragmentation of care.^{1,2} Elderly people are also at much greater risk of underusing many essential drugs.^{1,2,5} How to best reconcile the tension between polypharmacy and adverse effects, on the one hand, and the much larger problem of underuse of drugs and unrealized health benefits, on the other, is not known. Interventions to improve the quality of prescribing are urgently needed.

Several systematic reviews of such interventions have been reported.^{5,6} Although the literature is plagued by the absence of a common nomenclature, inadequate study designs, too-short time horizons and a focus on process rather than outcome, 3 generalizations can be made:

1. Interventions that rely solely on passive information transfer are ineffective. This includes disseminating articles and delivering traditional lectures in continuing medical education, as well as providing unsolicited information such as clinical guidelines, medication profiles or drug use reviews.
2. Active knowledge translation strategies are usually effective, although the effects are modest. Active strategies include audit and feedback involving comparison with peers and “real-time” reminders. Educational outreach (academic detailing) is the most consistently effective intervention reported. Based on social marketing theory, it refers to repeated face-to-face delivery of simple, targeted, and triable educational messages to physicians by a credible messenger such as a pharmacist.
3. Interventions that incorporate 2 or more distinct strategies (i.e., that are multifaceted) are more likely to work than single interventions.

With these precepts in mind and the conviction that community pharmacists are an underused resource, John Sellors and colleagues describe in this issue (page 17)⁷ how they developed a multifaceted intervention to improve prescribing for elderly patients taking more than 4 drugs. The intervention consisted of a detailed medication review by a specially trained pharmacist. Intervention pharmacists had access to patients’ medical charts and interviewed

study patients in physicians’ offices. This aspect was essential because one-third of apparent drug-related problems can be resolved with access to clinical data.⁴ A letter with explicit drug therapy recommendations was generated and sent to physicians. Soon after, pharmacists met in person with the physicians, and met them again after 3 months for a reminder visit. This intervention was compared with “usual care” in a cluster randomized controlled trial of 48 primary care physicians and 889 of their elderly patients. The primary aim was to reduce the number of drugs taken per patient. The investigators justify this by arguing that any reduction in the number of drugs taken by elderly people is an unqualified good, acting as “a proxy for a simplified medication regimen [leading to] fewer interactions, improved compliance and hence improved patient outcomes.”⁷ The design, conduct and analysis of this study have overcome most of the methodologic problems endemic to this type of research.^{5,6,8}

What did the investigators find? Compared with usual care, the pharmacist-based intervention had no effect on the number of drugs taken by patients (mean of 12.4 units v. 12.2 units per day in the control group, $p = 0.50$). There were also no differences in medication costs, health care use or health-related quality of life. These results are robustly negative, internally valid and, perhaps, not that unexpected. Although some will question the intervention dose (1 consultation) or study duration (5 months), we believe there are 2 other reasons for the lack of effect of an intervention that should have worked.

First, the intervention may have worked, but the wrong outcomes were measured. Although the intervention was intended to reduce the number of drugs, 28% of the drug-related problems identified by study pharmacists were errors of omission and 51% related to therapeutic substitution and better dosing. The vast majority of recommendations necessitated maintaining or increasing the number of drugs. This illustrates that the goal of simply reducing the number of drugs taken by elderly patients is misdirected, and we believe it should be abandoned as a measure of quality. The investigators also cautiously present some nonblinded, noncontrolled “process” data regarding recognition and resolution of drug-related problems in the intervention group. Because they did not collect the same data for control patients, as done in other studies,^{3,4,8} we cannot

know if the intervention actually succeeded in improving prescribing over and above usual care.

Second, it could be that the intervention worked but was not all that much better than usual "pharmaceutical care." Pharmaceutical care is described as a multifaceted process that ensures the appropriate use of specific drug therapies and results in positive outcomes for patients.⁹ Community pharmacists, whether or not they were part of the intervention, had pre-existing therapeutic alliances with patients and physicians. It is to be expected, and hoped, that pharmacists who were not part of the study were continuously addressing some drug-related problems in their elderly patients, leading to some improvements over time. It has long been acknowledged that the quality of care improves over time, and the influence of such secular trends should not be underestimated.^{3-5,10} For example, a trial of a somewhat similar intervention recently reported an 18% improvement in prescribing over 1 year — in the control group.³

In summary, the literature on changing physician practice is littered with many good ideas that were prematurely adopted and later found to be ineffective when tested in controlled studies.^{5,6} For instance, electronic health records with embedded computerized decision support to improve guideline adherence are widely advocated; however, a recent trial found that this intervention could not improve management of asthma or coronary disease in primary care.¹¹ John Sellors and colleagues are to be commended for having a good idea and rigorously testing it. Interventions to improve the quality of care need to be evidence-based and should not be widely adopted until controlled studies demonstrate that they are both safe and more effective than usual care. When usual care involves managing elderly patients' medication regimens with the intent of trying to balance risks and benefits as well as underuse and overuse, a one-off intervention should not be expected to work. Yet, in the search for solutions to prescribing problems, community pharmacists have been a too-often ignored resource. Further trials of integrated, coordinated and ongoing community-based pharmaceutical care interventions are certainly warranted and should be a research priority. Only with the results of these future studies in hand will we know whether consultation with community pharmacists can be added to the short list of methods capable of improving physicians' prescribing practices.

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Competing interests: None declared.

Contributors: Both authors contributed substantially to the conception and design of the commentary. Dr. Majumdar wrote the initial draft. Both authors revised subsequent drafts for important intellectual content and gave final approval of the version to be published.

Acknowledgements: Dr. Majumdar is a Population Health Investigator, supported by the Alberta Heritage Foundation for Medical Research, and a New Investigator supported by the Canadian Institutes of Health Research. Dr. Soumerai is an Investigator in the HMO Research Network Center for Education and Research in Therapeutics, supported by the US Agency for Healthcare Research and Quality (grant no U18H510391) and the Harvard Pilgrim Health Care Foundation.

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