
Improving Prevention in Primary Care: Physicians, Patients, and Process

James E. Davis, MD, MS; Patrick E. McBride, MD, MPH; and James A. Bobula, PhD
Madison, Wisconsin

Adult preventive services are not routinely provided in primary care practices.¹⁻⁷ This is not because of a lack of knowledge or because of disagreement in principle. Guidelines on screening asymptomatic adults have been expertly developed and broadly disseminated,⁸⁻¹³ and studies have shown that physicians and patients acknowledge the value of primary prevention and screening.¹⁴ Neither is it because of inadequate opportunity, since adult patients visit a physician an average of three times each year.¹⁵ Why then do we find that preventive services are provided at rates far below those recommended and that failure to provide such services results in significant loss of opportunity for potential improvement of health and prevention of disease?

Most attempts to answer this question to date have postulated that physicians are the primary barrier to our achieving the national objectives for prevention activities. Interventions have been targeted at improving physician knowledge through publication of guidelines or provision of continuing education about the merits of specific preventive services and about the physician's important role in prevention. However, there is little empirical evidence to suggest that the provision of cognitive knowledge will change either attitudes or performance of recommended prevention activities.^{16,17} Given that there is little evidence that acquisition of knowledge is sufficient to change physician behavior, the failure of these interventions should come as no surprise. Felch has previously stated that cognitive knowledge is prerequisite to desired clinical performance, but does not guarantee it.¹⁸ The inability of knowledge-oriented interventions to increase preventive services has nonetheless resulted in the perception that physicians are at fault for not delivering

quality care and in frustration over federal programs that have not had their intended impact.

The classic work of Harry Miller in applying principles of adult learning to medical education provides an insight into why knowledge-oriented interventions are insufficient for increasing physicians' prevention activities.¹⁹ He identified five essential conditions for producing change in adult learners: "(1) they must be adequately motivated to change their behavior; (2) they must be aware of the inadequacy of their present behavior and the superiority of the behavior they're required to adopt; (3) they must have a clear picture of the new behavior; (4) they must have opportunities to practice the new behavior with a sequence of appropriate materials; and (5) they must get continuing reinforcement of the new behavior." While knowledge-oriented interventions have at best addressed the first three of these conditions, they typically overlook the fourth and fifth. These latter conditions place a demand on a physician's practice environment, requiring that the environment be receptive to change and open to honest performance evaluation.

Unfortunately, it appears that interventions designed to improve the prevention practices of physicians have oversimplified the solution.¹⁴ While we have acknowledged for almost 40 years that basic biomedical science is complex and requires elaborate laboratories and methods, we have conversely underestimated the complexities of transfer of new knowledge and clinical routines at the community practice level.²⁰ This oversimplification has led to frustration at the federal policy making, research, and community practice levels.^{21,22}

There is a paucity of data regarding strategies to promote change in clinical practice environments. Medical practices have been described as closed systems that react skeptically to outside influences such as practice guidelines or consensus conference findings and that are slow to adopt new technologies or practice standards.^{23,24} Payne has emphasized that interventions to

From the Department of Family Medicine and Practice, University of Wisconsin-Madison (all authors), and the Wisconsin Clinical Cancer Center (J.E.D.), and Preventive Cardiology Program (P.E.M.). Requests for reprints should be addressed to James E. Davis, MD, MS, Department of Family Medicine and Practice, 777 South Mills Street, Madison, WI 53715.

improve ambulatory services must include active "provider involvement in problem identification, solving, and solution implementation."²⁰ There is evidence that esteemed leaders, physicians with high clinical acumen who have won the respect of their colleagues, can function as change agents within the practice environment.²⁵⁻²⁷ Quality improvement methodologies, recently introduced into the health care setting, are also promising as vehicles for facilitating change in medical practices.^{28,29} This approach has the effect of de-emphasizing the central role of the physician in providing quality care and refocuses scrutiny on understanding and improving the health care delivery process and its many complexities.²⁸ Since quality improvement methods rely heavily on systematic data collection, analysis, and feedback, they directly address the missing conditions in Miller's adult learning model. These methods are a radical departure from current medical practice, which typically supplies only negative feedback in the form of malpractice complaints or concerns raised by local peer review organizations. Quality-oriented programs focus more on evaluating system performance and are well suited to the ongoing assessment of clinical effectiveness, both of which are characteristics important to improving prevention practices.

The study by Carney and colleagues reported in this issue of the Journal is an innovative example of an intervention targeted at improving the provision of preventive services in primary care practice and incorporates many of the factors described above.³⁰ The authors describe the results of an office system intervention based on social cognitive theory, which posits a reciprocal relationship between cognition and environment that influences behavior. The office system model is noteworthy in that the intervention is aimed at the *entire office practice*, not individual physicians. The office system intervention addresses a number of potential practice environment barriers by focusing on such factors as the need for well-organized practice procedures, efficient use of time and resources, assignment of specific responsibilities to different members of the practice team based on their respective roles, and assurance that all team members have adequate training.

Unlike most intervention trials that involve a single prevention activity such as smoking cessation, the office system intervention dealt with multiple activities simultaneously, encouraging the practice to formulate a realistic, overall prevention agenda. Within the flexible framework of the intervention, the investigators were able to individualize strategies for improving delivery of preventive services to the specific needs and preferences of each practice, increasing the participants' ownership of and commitment to the planned changes. Consistent with Miller's assertion of the importance of reinforce-

ment, the investigators required each practice to monitor patients' receipt of preventive services over time and to relay this information to the practice team. Finally, by progressively investing the entire staff, not just the physicians, with responsibility for implementing structural changes in the practice's delivery of preventive services, the intervention increased the potential for lasting change. Since prevention is inherently a longitudinal activity, any intervention that does not effect sustainable change cannot be considered successful.

Some might argue that generalizability of the office system intervention is limited by the self-selection of subjects, since consent to engage in the study in itself differentiates participants from the general population of practitioners. However, Miller's contention that adequate motivation is a prerequisite of behavior change implies that such a trial could indeed only be effective in a self-selected population. Disinterested practitioners may not be candidates for the type of change engendered by this intervention. Nonetheless, the issue of generalizability to less motivated practices remains an important research question.

While our enthusiasm for the study by Carney and colleagues is apparent, we do believe that they understate the cost of the intervention.³⁰ The expertise of the study team and the amount of time necessary to work with each practice in developing and monitoring new procedures were considerable. There was active project team involvement in preparing educational materials, office procedure manuals, and monitoring, all of which is expensive. The next phase of their research, applying these methods on a wider scale through the American Cancer Society, may provide truer estimates of the cost of such programs when implemented through a more typical dissemination channel.

Another limitation of the approach described by Carney et al is that it places sole responsibility for initiating prevention on the practice.³⁰ In reality, patients also have an important role, even though they may be unaccustomed to thinking about health care from a preventive prospective.^{31,32} Just as behavior change is difficult in physicians and practice environments, it is also difficult for patients. A more comprehensive approach to prevention should include strategies for activating patients to take responsibility for initiating requests for preventive services. More research is needed to examine the effects of motivating patients and practices simultaneously.

The development of clinical guidelines by specialty societies and by federal policy makers is an important ingredient in the drive to improve the quality of American health care. However, there is an urgent need to recognize that guidelines, educational materials, kits, and other strategies *external* to physicians' everyday practices

will not work in isolation and without incentives. Research such as that conducted by Carney et al points to the greater effectiveness of programs that engage physicians and their staffs in systematically changing their practice routines.³⁰ Much work remains to be done in identifying practice characteristics that predict adaptability, in refining methods of fostering delivery of preventive services, and in assessing the impact of increased attention to prevention on the economic health of practices as well as on the physical health of the population. It is encouraging that evaluation of interventions to improve prevention in primary care settings is now a federal funding priority and that several such studies are currently underway.

Family practice researchers have helped to set the prevention research agenda and should continue to lead these research efforts. It is also important that family physicians promote the development of policies that provide reimbursement for appropriate preventive services at a level consistent with reimbursement for acute care services. Practices would then have both the incentive and the resources necessary to implement those systems of delivering preventive care that ongoing research determines to be effective.

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