An Ounce of Prevention? Evaluation of the 'Put Prevention into Practice' Program

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BACKGROUND. The "Put Prevention into Practice" (PPIP) program was designed to enhance the capacity of health care providers to deliver clinical preventive services. This study was designed to evaluate the program's effectiveness when applied to family physicians in private practice settings.

METHODS. Eight Midwestern practices that had purchased PPIP kits were identified and agreed to participate in the study. A comparative case study approach encompassing a variety of data collection techniques was used. These techniques included participant observation of clinic operations and patient encounters, semistructured and key informant interviews with physicians and staff members, chart reviews, and structured postpatient encounter and office environment checklists. Content analysis of the qualitative data and construction of the individual cases were done by consensus of the research team.

RESULTS. PPIP materials are not being used, even by the clinics that ordered them. Physicians already providing quality preventive services prefer their existing materials to those in the PPIP kit. Sites that are underutilizing preventive services are unable or unwilling to independently implement the PPIP program.

CONCLUSIONS. Development of technical support may facilitate implementation of PPIP materials into those practices most deficient in providing preventive services. Given the diversity of practice environments it is unlikely that a "one size fits all" approach will ever be able to address the needs of all providers.

KEY WORDS. Preventive health services; delivery of health care; primary health care; practice management, medical. *J Fam Pract 1996; 43:361-369*)

tudies indicate that patients are receptive to clinical preventive services¹ and that most physicians agree that providing periodic screening is important.² Physicians also generally agree with the guidelines developed by the US Preventive Services Task Force.³⁴ Nevertheless, implementation of preventive services has been relatively poor. Observational studies have reported that adherence to preventive services guidelines by clinicians ranges from 0% to 100% depending on the service being provided. Even in studies with active interventions, most postinterven-

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tion adherence rates are in the 20% to 60% range.^{5,6} In recent years, increasing importance has been placed on more complex preventive services, including patient counseling.⁷ Studies examining the quality of counseling provided, however, have revealed that physicians' counseling skills are often inadequate even when this service is offered.⁸⁴¹

Barriers to implementing preventive services include: (1) patient factors, such as inconvenience, discomfort, lack of knowledge or motivation, and expense; (2) physician factors, such as lack of time, competing demands, uncertainty about conflicting recommendations, lack of training in prevention, and poor communication skills; and (3) health care systems factors such as inadequate reimbursement, lack of health insurance, and office organization issues.¹²⁻¹⁴ Proponents of the competing-demands model suggest that efforts to improve the delivery of preventive services are not likely to be effective unless the burden of other

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demands on the physician are removed.¹⁵

Manifold attempts to improve the delivery of preventive services have achieved varying degrees of success. It is clear that programs that stress physician knowledge alone (ie, traditional CME) are insufficient to change clinical behavior.^{9,16,17} Recent efforts have often focused on changing the office environment, sometimes targeting a single office routine in an effort to improve the delivery of preventive services.1 Some clinic-based interventions have included flow charts, patient-held mini-records, in-office provider prompts, mailed and telephone patient reminders, and computerized reminder systems.²¹ One of the more promising approaches looks more comprehensively at the overall office system: described by Dietrich and coworkers, the "Preventive GAPS" approach23-24 includes goal setting, assessment of current prevention activities, planning improved office routines, and starting new preventive care office systems. This approach encourages sharing of prevention responsibilities among physicians and staff members and emphasizes a process of continual quality improvement. Preventive GAPS intervention has achieved success in the area of cancer prevention and screening in a group of motivated practices that were provided outside support and training. It is unclear, however, how well practices will be able to adopt this approach without external encouragement or technical support.22-24

Recently, the Put Prevention into Practice (PPIP) program incorporated many different interventions into an organized, comprehensive program designed to address patient, clinician, and systems barriers. PPIP is an office-based intervention sponsored by the Public Health Service in cooperation with major health-related voluntary groups and provider organizations. It is specifically recommended by the US Preventive Services Task Force as a set of tools that can be used to implement their guidelines.⁷ PPIP materials are distributed by the American Academy of Family Practice (AAFP) and others in the form of kits. The contents of these kits are described in the Appendix.

These materials became available in the fall of 1994 and were widely publicized by several national organizations. So far, only one evaluation of the program has been published in the medical literature.²⁵ In that study, internal medicine residents at an innercity hospital demonstrated an increase in prevention

knowledge after attending a series of preventionrelated grand rounds and conferences and after PPIP materials were introduced in their clinic. After the intervention, clinic patients also reported receiving more preventive services as compared with those at a control site. It is unclear how effective the PPIP program will be in other settings with different types of providers and patient populations. It is also uncertain how successful practices that order PPIP will be in their attempts to implement the materials independently.

This paper describes the result of an evaluation performed for the AAFP on the use of PPIP materials in family practice sites and the extent to which physicians were able to implement the PPIP program in their offices.

METHODS

The study was conceptualized as an exploratory multimethod case study examining in detail a group of practices that had adopted the PPIP materials.^{26,27} We selected the study sites from a list obtained from the American Academy of Family Physicians of all practices that had purchased a PPIP kit plus additional materials. In this way we hoped to identify only those practices that were actually using the materials. From this list it was possible to identify 16 practices as potential sites within a 300-mile radius of Omaha, Nebraska, where the investigators are located. One site of purchase turned out to be a residency program, and another was so isolated from the others that it was not feasible to include it. Final study sites were then purposefully chosen to represent both solo and group private practices from rural and urban areas. The excluded private practice sites included two urban group practices, one rural solo practice and four rural group practices. Each of these practices indicated that they were not using the PPIP kit. All practices contacted agreed to participate; however, it was only possible to schedule eight visits in the allotted time frame, a number consistent with case study literature.

Eight family practices, in Iowa, Kansas, Missouri, and Nebraska, were visited for 2 to 3 days each over a 3-month period. Multiple data collection strategies were used to ensure comprehensiveness and triangulation of results. These methods included dictated participant observation field notes of the office setting and clinical encounters; key informant interviews of office staff; more formal, semistructured interviews with the contact physician and the office manager; structured observation checklists of the office environment and clinical encounters; and chart audits.

Data were collected by a second-year medical student trained in qualitative techniques and the use of our quantitative instruments. The medical student observed all clinical encounters for one day in each practice. For each patient visit, she completed a structured post-encounter form (developed by Kurt Stange at Case Western Reserve University) and recorded written observations that were expanded into dictated field notes that evening. The postencounter forms were used to gather patient demographic information and a checklist record of preventive services addressed during the visit. The fieldworker also spent time with office staff to learn their perspectives on how the office functioned with respect to preventive services, including PPIP. During the second day, the researcher abstracted information from the charts of all patients seen on a day within the previous year; these charts were selected through the use of a random numbers table. Adult charts were audited for documentation of smoking status, tetanus booster within the last 10 years, mammograms for women over age 50, and serum cholesterol determination. These activities were selected to represent a range of services including cancer and cardiovascular screening tests, immunizations, and patient counseling. We also chose these markers of preventive services because they are generally well accepted by the medical community, and they were likely to be documented in the medical record.

All dictated field notes and taped interviews were transcribed and imported into Folio VIEWS,²⁸ a qualitative data management software program. The researchers created three teams, one to analyze indepth interviews, another to analyze field notes, and a third to summarize statistical data from the chart audits and the structured observation forms. The team analyzing the in-depth interviews used the "editing" technique,²⁹ ie, searching transcribed texts for meaningful phrases and then sorting those phrases into categories. The team analyzing the field notes used the "template" technique.³⁰ The template technique began with the development of a codebook based on motifs suggested by the literature and our previous experience with PPIP. Revisions of this codebook were made during reading of the actual text. This template was applied to the text to identify and categorize meaningful units of observed behaviors. Both groups explored the resulting categories for patterns and emergent themes. Descriptive frequency statistics were generated for the quantitative data. Once data were analyzed by each team, members of the different teams met as a group to develop descriptive case studies of each of the practices and then to compare these to identify similarities and differences. Consistency among the multiple data sources ensured the internal validity of our findings and increased the richness of the case descriptions. Matrices were constructed to facilitate the comparison of individual practices according to different categories identified by the three groups. Interpretation of the relevance of the case studies was achieved by consensus of the entire analysis team.

RESULTS

Eight case studies were constructed, which allowed comparison of the practices in the following areas: motivation for performing preventive services, current level of prevention, degree of organization or efficiency, and PPIP utilization. A systematic comparison of the practices revealed considerable variation in the delivery of preventive services among the PPIP purchasers. Although most practices were not providing a high level of services, some practices were models of preventive care. PPIP materials were used not at all or only sporadically by the practices that had ordered the kit. These cases illustrate the different reasons for PPIP's limited application.

Three distinct practice styles with regard to the delivery of preventive services were represented in our sample of practices. Of the eight sites visited, four provided limited preventive services. These practices, although they stood to gain the most from the intervention, did not have the organizational skills to independently implement the PPIP materials. Two practices provided good *medical* preventive services including immunizations, identification of risk factors, and laboratory screening tests. These practices had already developed office routines and tracking systems that facilitated the delivery of these services. PPIP was not used by these practices because it offered no advantage over their existing systems. Two additional practices provided good overall pre-

vention including medical preventive services and effective lifestyle counseling. These practices also had highly developed office systems for the delivery of preventive services and would derive no benefit from implementing the new PPIP materials.

PPIP IN PRACTICES WITH LIMITED PREVENTION

The four practices that provided limited preventive services had difficulties because their office systems were not organized in a way that would facilitate the delivery of preventive services. Physicians in these practices did not provide strong leadership in the area of prevention, and responsibility for providing these services was not shared among other staff Poor time management, inefficient members. patient flow, and haphazard documentation of previously delivered preventive services contributed to artificial time constraints that hindered the provision of these services. These practices, although they could have benefited from the intervention, were unable to incorporate PPIP materials into their office system unassisted. The following case study illustrates this type of practice:

Case 1

Case 1 is a three-person practice in a small town. Our contact physician has kept up to date with the

Medical Preventive	Services		
Documented Preventive Service		s % of Eligible Patients	
Mammograms <2 y			37
Cholesterol <5 y			51
letanus <10 y		13	
Smoking history		23	
TABLE 2			
TABLE 2 Case 1 Medical Pra Encounter Preventi	ictice Site: ve Services Int	Summary of Data Checklist terventions per Pa	from Post- atient Visit
TABLE 2 Case 1 Medical Pra Encounter Preventi Type of Visit	ictice Site: ve Services Int Topics, no.	Summary of Data Checklist terventions per Pa Counseling, no.	from Post- atient Visit Biomedical,* no
TABLE 2 Case 1 Medical Pra Encounter Preventi Type of Visit Acute/chronic care	ictice Site: ve Services Int Topics, no. 3.4	Summary of Data Checklist terventions per Pa Counseling, no. 0.63	a from Post- atient Visit Biomedical,* no 0 .44

latest recommendations for preventive services through CME courses and medical journals. He agrees with the recommendations outlined in the PPIP manual and believes they are "practical" for his patients. Regarding the current level of prevention within the clinic, he states, "I think the practice is set up pretty well for people that are coming in. . . . [W]e do a pretty good job in offering preventive health care and trying to make sure that people have had the proper screening." He believes that one of the major obstacles to doing a better job of providing these services is lack of time. His staff members are less certain about the practice's ability to provide extensive preventive care. Regarding prevention in the practice, the head nurse states, "I don't think we have any," and "I don't think we have any one central plan." The staff also cite time constraints as the major barrier to providing more preventive services:

[I]t would be good to even have time to sit down with a patient themselves and see what would fit them. What would be important for them, like their family histories and with their particular lifestyles or particular concerns or whatever, to see what would have been best. We just don't have any way of doing that. We spend so much time like [Physician 1] putting out fires.

Chart audits of this physician reveal that the utilization of medical preventive services is low (Tables 1 and 2), and he uses few opportunities for patient counseling. The charting system is disorganized (not always in chronological order, laboratory results and radiology reports interspersed with progress notes) and does not facilitate tracking preventive services. Problem lists and medication profiles are not completed, and there are no flow sheets or physician reminder systems in place to prompt the physician to recommend preventive services. Within the practice there is no clear sense of leadership or initiative in the area of prevention. The creation of a new health history form was discussed during a staff meeting, and although everyone agreed that it was a good idea, no one around to developing one. ever got Responsibility for providing preventive services is placed almost exclusively on the shoulders of the physician, with little delegation or sharing

of responsibilities with other staff members. The physician states, "[I]f I can remember as

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patients come in to go over their preventative [sic] health care . . . I'll hopefully keep up with what I need to keep up with in the office." The office routines do not facilitate the efficient delivery of preventive services (eg, the nurse does not get supplies for Pap smears ready for the physician until he specifically asks her), making these activities more time intensive. This style of time management is evident in the operation of other areas of the clinic. The physician's patient load is not excessive, around 20 patients per day, yet he is often behind schedule and feels rushed, leaving little time left over for prevention.

The practice was recently purchased by a hospital, and the charts are currently being updated; however, no PPIP materials or other prevention-related innovations are being instituted. The physician expressed concern that the tracking and recall systems would place an additional time burden on him and his staff. The office has framed PPIP posters mounted on the walls, but most of the other materials have been left in the box.

PPIP IN PRACTICES WITH GOOD MEDICAL PREVENTION

The second type of practice did a good job of providing medical preventive services, such as immunizations and early cancer detection screening examinations, but little in the way of counseling. The delivery of these services was facilitated by wellestablished office systems including flow sheets and physician-prompting devices, patient recall systems, and patient education materials. Responsibility for delivering these services was shared between the physician and office staff, and office routines had been established to deliver them in an efficient manner. The physicians in these practices were strong leaders who had developed many office systems innovations on their own. PPIP was not used by these practices because they already had similar or even superior materials in place. The following example illustrates these points:

Case 2

Case 2 is a two-person practice in a large city. Our contact physician sees more than 50 patients per day, performs his own flexible sigmoidoscopies and treadmill tests, and runs an urgent care center within his office. He is an experienced businessman who organizes his office systems and staff for maximal efficiency. He has designed a very sophisticated med-

ical record system that includes flow sheets, physician prompts, periodic chart audits, computer-generated reminder systems, and patient education materials. He relies heavily on his staff to do much of the background work for him and to ensure that patient flow is maintained. Of this shared responsibility, the physician states, "I like to think of my office as an orchestra, and all I am is the band leader." These office routines not only enhance his ability to provide preventive services, they also allow him to handle an extremely heavy patient load. "Why not make it easy?" he says. "Why not have something with checklists? Why not have a problem sheet so you don't have to go back each time to review the chart?" This physician is motivated to satisfy his "customers" and to provide adequate documentation of preventive services to meet the requirements of various managed care organizations. The result of this highly organized office system is that his delivery of medical preventive services is quite good (Table 3). In fact, all his adult patients had their smoking status documented in the chart. He was not observed spending time addressing psychosocial issues during office visits, however, and indicated that preventive services outside the medical arena are not appropriate for him to address:

I also would take exception that all my patients should have their sex lives discussed. And yet, that's required by one of the major HMOs, just like I've stated, and I have to check off that I've discussed each of these. One of them asks that we discuss domestic violence and gun control in the home. It's going beyond the scope of where we are. I'm all for it, but the education needs to come from other places besides the doctor's office. And we have some people, we simply explain, folks, your insurance company requires that we give you these things, and please go along with it.

Although the practice meticulously fulfills the insurance companies' requirements to document the identification of high-risk lifestyles, the delivery of preventive counseling services is not optimal.

The physician ordered the PPIP materials because "I've always got my eyes open for anything that [I] might add. I'll pick out the best of whatever I see." This fits with the general approach the physician and staff members use to develop and adapt materials from other sources to suit their own practice's needs. No PPIP materials were incorporated into their office routines because these materials TABLE 3

Case 2 Medical Practice Site: Chart Audit Data on Patient Use of Medical Preventive Services

Documented Preventive Services	% of Eligible Patients
Mammograms <2 y	60
Cholesterol <5 y	77
Tetanus <10 y	80
Smoking history	100

TABLE 4

Case 2 Medical Practice Site: Summary of Data from Post-Encounter Preventive Services Checklist

Type of Visit	Interventions per Patient Visit			
	Topics, no.	Counseling, no.	Biomedical,* no.	
Acute/chronic care	2.7	0.74	0.39	
Health maintenance	10.1	1.0	1.4	

offered no advantage over their largely computerized and more comprehensive existing system.

The limitation of this practice was that the delivery of preventive services involving counseling about lifestyle changes or psychosocial issues was

Case 3 Medical Pra Medical Preventive	ctice Site: C Services	hart Audit Data o	n Patient Use of
Documented Preve	ntive Service	s % of Eligit	ble Patients
Mammograms <2 y			75
Cholesterol <5 y		1	86
Tetanus <10 y		17	
Smoking history		93	
TABLE 6 Case 3 Medical Pra Encounter Preventi	ctice Site: S ve Services (In	ummary of Data f Checklist terventions per Pa	rom Post-
TABLE 6 Case 3 Medical Pra Encounter Preventi Type of Visit	ctice Site: S ve Services (In Topics, no.	ummary of Data f Checklist terventions per Pa Counseling, no.	rom Post- itient Visit Biomedical,* n
TABLE 6 Case 3 Medical Pra Encounter Preventi Type of Visit Acute/chronic care	ictice Site: S ve Services (In Topics, no. 3.5	ummary of Data f Checklist terventions per Pa Counseling, no. 0.94	rom Post- ttient Visit Biomedical,* n 0.22

not optimal (Table 4). Its homegrown office system, like PPIP, works well for services such as screening tests, immunizations, and documentation of certain risk factors. These office systems are not designed to enhance the counseling skills of health care providers and do not address the financial and other barriers to providing preventive counseling services.

PPIP IN PRACTICES WITH GOOD OVERALL PREVENTION

A third type of practice was able to deliver both traditional medical preventive services and effective lifestyle counseling. Two of the eight practices were able to provide this enhanced level of care. In addition to having established office routines that facilitate the delivery of medical preventive services, the physicians in these practices were zealous and skillful counselors who created opportunities even during acute care visits for counseling to change patients' personal health practices. Case 3 illus-

trates this type of model practice:

Case 3

Case 3 is a five-person practice in a medium-sized city. Our contact physician has organized his entire

practice around his very strong desire to provide comprehensive preventive care. Like the physician in case 2, he has developed a number of his own office system innovations, including flow sheets, chart stickers, and patient education materials that he considers superior to and more sophisticated than those included in the PPIP kit. His patient load of approximately 22 patients per day is equivalent to that in case l, but in contrast, the better overall efficiency of the practice allows him to spend more time on prevention. Chart audits revealed that he is good at delivering medical preventive services (Table 5). In addition to providing these services, he is also comfortable in addressing psychosocial issues related to prevention (Table 6). He creates "windows of opportunity" to discuss prevention issues during almost all visits. He describes his approach:

Especially if they come in for an episodic complaint, come in for a sore throat or sinus infection or something like that. "You know, you haven't had a physical for a couple of years. At your age, la di da is recommended. Can we schedule a physical for you?"... And I try, you know, not to solve the world's problems in one visit. You saw that I might try to limit myself to cardiovascular disease or early detection of cancer, safety or violence issues, and psychosocial mental health. If I can accomplish that in a visit, then I feel good about it.

Within individual clinical encounters, he allocates most of his time to primary preventive counseling. During adult health maintenance visits he provided counseling regarding an average of six different lifestyle issues (apart from screening for risk factors or recommending screening tests, immunizations, or chemoprophylaxis) to each patient. This counseling addressed safety issues, diet, physical activity, substance abuse, tobacco cessation, "safe sex," contraception, and psychosocial issues.

This physician not only covers a broad range of preventive topics, his observed counseling skills were excellent, and he takes time to meaningfully address lifestyle changes on a repeated basis. Regarding smoking cessation counseling, his nurse states, "He's death on smoking. I mean, absolutely death on smoking. And you hear any patient ... 'He's not going to like it. I didn't stop smoking." Of his own effectiveness in this area the physician estimates, "[S]tatistically you can get about 50% of the people to quit. But I think I do a little bit better than that, because I'm really tenacious and people know that that's a major issue." Even though our methodology did not allow us to assess patient outcomes directly, it is clear that his approach involves more intense patient counseling than that provided by the physician in case 2.

DISCUSSION

These case studies illustrate the three basic practice types we encountered and explain why PPIP materials were not extensively utilized by any of the physicians. The first type had limited delivery of any preventive services. These physicians lacked sufficient organizational capabilities to independently implement PPIP. The second type of physician already is proficient in the delivery of medical preventive services and has independently developed office systems that facilitate these activities. In this case, the PPIP program offers little advantage over existing office innovations and does not utilize the computer technology with which this group is experimenting. A third group of physicians already does a good job of delivering both medical and psychosocial/counseling preventive services. Although the PPIP program focuses on systems to track medical preventive services and identification of patients in need of lifestyle interventions, it does not address the issue of developing physician counseling skills to this level.

PPIP materials, although theoretically sound, were ineffective at increasing the utilization of preventive services in the sites we studied because of problems with their implementation. Our study was limited by selection bias in favor of those practices motivated and interested enough in prevention to actually order PPIP kits. Even these practitioners were unable or unwilling to translate the individually validated components of the kit into their existing office practice and culture. Although, Gemson and co-workers were able to show the effectiveness of the program after it was implemented,²⁵ the problem in these private practice settings was the implementation process itself. To make the PPIP program successful, several problems need to be addressed in order to facilitate its use among physicians having difficulty providing preventive care

A method of providing technical support should be developed for physicians interested in using PPIP materials or wanting to enhance their delivery of preventive care. This service should focus on integrating PPIP materials into existing office systems and modifying them to suit the needs of the individual practice. Our data suggest that without this type of external support, the practices most in need of the new office systems will be unable to implement them independently.

A further modification is suggested by the limitations inherent in the whole approach of providing a prepackaged kit as a way to promote change in an office practice. Our research confirms the findings of Dietrich and colleagues^{16,22} that only a few physicians have the skills needed to carry out the process of change and quality improvement within their practice sites. Practices that have mastered this process can easily develop prevention systems on their own or adapt them from other sources. PPIP could be a resource for these practices as templates for their own ideas. For those practices that have not been instructed in this process, however, a prepackaged kit such as the PPIP kit is unlikely to be a satisfactory solution. Just as knowledge alone is insufficient to change physician behavior, the tools provided in the PPIP kit are unlikely to alter established practice patterns. Even if practices successfully use outside technical assistance to implement the current PPIP tools (eg, flow sheets), they will remain dependent on outside sources of help in the future if they have not mastered this process of change and continual quality improvement.

Clearly, given the existing diversity of practices. there is no one single intervention that will be appropriate for all office settings. The PPIP program was designed for widespread application, although it can accommodate some modifications by individual practices. Our data suggest that a "one size fits all" intervention cannot address the different organizational needs and existing office structure of all practices. It is likely that several different interventions targeting different aspects of preventive services delivery, different provider styles, and different types of health care organizations will be needed. In the area of office system tools alone, the range of available interventions should be expanded. Because many offices are experimenting with various computerized office systems, interventions should be developed that utilize this technology, again tailored to the existing computer capabilities of the practice.

On a positive note, our results do suggest that the competing demands on physicians' time can be at least partially compensated by an increase in overall office efficiency. We found several practices that were able to accommodate large patient volumes and still deliver preventive services. They were able to expand their capacity to meet patient care demands through efficient time management and good office organization. It is encouraging to note that health care need not be a "zero sum game," and that the delivery of preventive services need not equate to an unrealistic burden on the physician.

The results of this study suggest important questions and directions for future research into practice organization and readiness for change. What is the role of practice organization and culture that enables some practices to see large volumes of patients, do preventive services, and not feel the time pressures that are evident in other practices? Why are some practices more open to change than others? Our case study hints at the possibility that practices could be classified according to Prochaska's fivestage process of the readiness for change model that is applied to individuals (consider case 1 as an example of a precontemplator).^{17,31-33} Would an intervention based on a similar assessment of a practice's readiness for change be successful in modifying practice behavior? Additional research is needed to better understand and to facilitate this change process in primary care practices.

There are several limitations of this study that relate to its generalizability. We looked exclusively at private practitioners and focused only on eight practices in a geographically limited area. It may be that PPIP materials have more utility in different clinical arenas, eg, residency training programs, community health centers. Future research should assess the applicability of PPIP as well as the need for other prevention-enhancing interventions to these sites as well.

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REFERENCES

- 1. Cogswell B, Eggert MS. People want doctors to give more preventive care: a qualitative study of health care consumers. Arch Fam Med 1993; 2:611-9.
- Knight BP, O'Malley MS, Fletcher SW. Physician acceptance of a computerized health maintenance prompting program. Am J Prev Med 1987; 3(1):19-24.
- 3. Stange KC, Kelly R, Chao J, Zyzanski SJ, Shank JC, Jaen CR, et al. Physician agreement with US Preventive Services Task Force recommendations. J Fam Pract 1992; 34:409-16.
- Goodspeed R, Corvo P, Martel T. US Preventive Services Task Force guide to clinical preventive services: opinions of primary care physicians. Clin Res 1990; 38(2):1990.
- Hahn DL, Berger MG. Implementation of a systematic health maintenance protocol in a private practice. J Fam Pract 1990, 31:492-504.
- Pommerenke FA, Weed DL. Physician compliances: improving skills in preventive medicine practices. Am Fam Physician 1991; 43:560-8.
- US Preventive Services Task Force. Guide to clinical preventive services. 2nd ed. Baltimore, Md: Williams & Wilkins, 1996:xxxiii, lx, lxxv, lxxx.
- Hoppe RB, Farquhar LJ, Henry R, Stoffelmayr B. Residents' attitudes towards and skills in counseling: using undetected standardized patients. J Gen Intern Med 1990; 5:415-20.
- Davis DA, Thomson MA, Oxman AD, Haynes RB. Evidence for the effectiveness of CME: a review of 50 randomized controlled trials. JAMA 1992; 68:1111-7.
- Fredman L, Rabin DL, Bowman M, Bandemer C, Sardeson K, Taggart VS, English DK. Primary care physicians' assessment and prevention of HIV infection. Am J Prev Med 1989; 5:188-95.
- Anda RF, Remington PL, Sienko DG, Davis RM. Are physicians advising smokers to quit? The patient's perspective. JAMA 1987; 257:1916-9.
- Kottke TE, Brekke ML, Solberg LI. Making "time" for preventive services. Mayo Clin Proc 1993; 68:785-91.

- Burack RC. Barriers to clinical preventive medicine. Prim Care 1989; 16:245-50.
- 14. Frame PS. Health maintenance in clinical practice: strategies and barriers. Am Fam Physician 1992; 45:1192-200.
- Jaen CR, Stange KC, Nutting PA. Competing demands of primary care: a model for the delivery of clinical preventive services. J Fam Pract 1994; 38:166-71.
- Dietrich AJ, Barrett J, Levy D, Carney-Gersten P. Impact of an educational program on physician cancer control knowledge and activities. Am J Prev Med 1990; 6:346-52.
- Davis DA, Thomson MA, Oxman AD, Haynes RB. Changing physician performance: a systematic review of the effect of continuing medical education strategies. JAMA 1995; 274:700-5.
- Mullooly JP. Increasing influenza vaccination among high-risk elderly: a randomized controlled trial of a mail cue in an HMO setting. Am J Public Health 1987; 77:626-7.
- Tucker JB, DeSimone JP. Patient response to mail cues recommending influenza vaccine. Fam Med 1987; 19:209-12.
- Leirer VO, Morrow DG, Pariante G, Doksum T. Increasing influenza vaccination adherence through voice mail. J Am Geriatr Soc 1989; 37:1147-50.
- McPhee SJ, Detmer WM. Office-based interventions to improve delivery of cancer prevention services by primary care physicians. Cancer 1993; 72:1100-12.
- Dietrich AJ, Woodruff CB, Carney PA. Changing office routines to enhance preventive care: the preventive GAPS approach. Arch Fam Med 1994; 3:176-83.
- Carney PA, Dietrich AJ, Keller A, Landgraf J, O'Connor GT. Tools, teamwork, and tenacity: an office system for cancer prevention. J Fam Pract 1992; 35:388-94.
- 24. Leininger LS, Finn L, Dickey L, Dietrich AJ, Foxhall L, Garr D, et al. An office system for organizing preventive services. A

report by the American Cancer Society Advisory Group on Preventive Health Care Reminder Systems. Arch Fam Med 1996; 5:108-15.

- 25. Gemson DH, Ashford AR, Dickey LL, Raymore SH, et al. Putting prevention into practice: impact of a multifaceted physician education program on preventive services in the inner city. Arch Intern Med 1995; 155:2210-6.
- Yin RK. Case study research: design and methods. 2nd ed. Newbury Park, Calif: Sage Publications, 1989.
- Stake RE. Case studies. In: Denzin NK, Lincoln YS, eds. Handbook of qualitative research. Newbury Park, Calif: Sage Publications, 1994.
- Folio Corp. Folio VIEWS infobase manager system user's guide, version 3.1 [computer software]. Provo, Utah: Folio Corp, 1996.
- 29. Crabtree BF, Miller WL. The analysis of narratives from a long interview. In: Stewart M, Tudiver F, Bass MJ, Dunn EV, Norton PG, eds. Tools for primary care research. Newbury Park, Calif: Sage Publications, 1992.
- Crabtree BF, Miller WL. A template approach to text analysis: developing and using codebooks. In: Crabtree BF, Miller WL, eds. Doing qualitative research. Newbury Park, Calif: Sage Publications, 1992.
- Cohen SJ, Halvorson HW, Gosselink CA. Changing physician behavior to improve disease prevention. Prev Med 1994: 23:284-91.
- Main DS, Cohen SJ, DiClemente CC. Measuring physician readiness to change cancer screening: preliminary results. Am J Prev Med 1995; 11:54-8.
- Prochaska JO, DiClemente CC, Norcross JC. In search of how people change: applications to addictive behaviors. Am Psychol 1992; 47:1102-14.

Appendix

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Contents of the 'Put Prevention into Practice' (PPIP) Kit

Child and adult personal health guides	Patient education booklets that allow for self-monitoring and recording of preventive services
Wall posters and charts	Patients can review while waiting, prompting them to subsequently bring particular items to the attention of the clinician
Patient record alert stickers	Identify specific high-risk behaviors or specific prevention interventions needed (such as "smoker" or "mammogram")
Pediatric and adult flow sheets	Paper-based charting forms, which can be modified by the practice site
Promotional buttons	Worn by office staff to encourage patient interest and questions
Removable adhesive stickers	Used as interoffice reminders that a patient needs a particular test or counseling
Reminder postcards for adults and children	Mailed when health maintenance examinations are due
Prevention prescription pads	For behavioral change contracts
Clinician's Handbook of Preventive Services	Reference book for health care providers provides practical advice and a summary of preventive services
Age charts	Summarize for the family physician appropriate age-specific preventive services

Description