

26. LaRosa JC, Applegate W, Course JR 3rd, Humminghake DB, Grimm R, Kropp R, et al. Cholesterol-lowering in the elderly. Results from cholesterol reduction in seniors program (CRISP) pilot study. *Arch Intern Med* 1994;154:529-39.
27. Santinga JT, Rosman HS, Rutenfire M, Maciejko JJ, Kobylak L, McGovern ME, Behounek BD. Efficacy and safety of pravastatin in the long-term treatment of elderly patients with hypercholesterolemia. *Am J Med* 1994;96:509-15.
28. Pedersen TR, Kjekshus J, Pyörälä K, Wilhelmsen L, Haghfeld T, Thorgeirson G. Effect of simvastatin on survival and coronary morbidity in coronary heart disease patients 65 or older. Scandinavian Simvastatin Survival Study (4S) Group. *Circulation* 1995; 92(suppl):I-672. Abstract.
29. Miettinen TA, Pedersen TR, Pyörälä K, Kjekshus TK. Cholesterol lowering with simvastatin reduced major coronary events, revascularization procedures and cardiovascular hospitalizations in women participating in the Scandinavian Simvastatin Survival Study (4S). *Circulation* 1996;94:1-12.
30. Kane JP, Malloy MJ, Ports TA, Phillips NR, Diehl JC, Havel RJ. Regression of coronary atherosclerosis during treatment of familial hypercholesterolemia with combined drug regimens. *JAMA* 1990;264: 3007-12.
31. Cleeman JI, Grundy SM. National Cholesterol Education Program recommendations for cholesterol testing in young adults. A science-based approach. *Circulation* 1997;95:1646-50.
32. McBride P, Plane MB, Underbakke G, Brown R, Schrott H. Cholesterol management of CVD patients by primary care physicians. *Can J Cardiol* 1997;13: 29B.
33. Stafford RS, Blumenthal D, Pasternak RC. Variations in the cholesterol management practices of U.S. physicians. *J Am Coll Cardiol* 1997;29:139-46.
34. American Academy of Pediatrics. National Cholesterol Education Program. Report of the Expert Panel on Blood Cholesterol Levels in Children and Adolescents. *Pediatrics* 1992;89(3 Pt 2):525-84.
35. McHill HC Jr, McMahan CA, Malcom GT, Oalman MC, Strong JP. Effects of serum lipoproteins and smoking on atherosclerosis in young men and women. The PDAY Research Group. *Pathological Determinants of Atherosclerosis in Youth. Arterioscler Thromb Vasc Biol* 1997;17:95-107.
36. Shepherd J. The cost-effectiveness of preventing initial coronary events with pravastatin: results of the West of Scotland Coronary Prevention Study Economic Analysis. West of Scotland Coronary Prevention Study Economic Analysis Group. *J Am Coll Cardiol* 1997;29:168A.
37. Goldman L, Gordon DJ, Rifkind BM, Hulley SB, Detsky AS, Goodman DW, et al. Cost and health implications of cholesterol lowering. *Circulation* 1992;85:1960-8.
38. Chait A, Brunzell JD, Denke MA, Eisenberg D, Ernst ND, Franklin FA Jr, et al. Rationale of the diet-heart

statement of the American Heart Association. Report of the Nutrition Committee. *Circulation* 1993;88: 3008-29.

39. Krauss RM, Decklebaum RJ, Ernst N, Fisher E, Howard BV, Knopp RH, et al. Dietary guidelines for healthy American adults. A statement for physicians and health professionals by the Nutrition Committee, American Heart Association. *Circulation* 1996;94: 1795-800.
40. Denke MA. Cholesterol-lowering diets. A review of the evidence. *Arch Intern Med* 1995;155:17-26.
41. Johnson CL, Rifkind BM, Sempos CT, Carroll MD, Bachorik PS, Briefel RR, et al. Declining serum total cholesterol levels among US adults. The National Health and Nutrition Examination Surveys. *JAMA* 1993;269:3002-8.
42. Ornish D, Brown SE, Scherwitz LW, Billings JA, Armstrong WT, Ports TA, et al. Can lifestyle changes reverse coronary heart disease? The Lifestyle Heart Trial. *Lancet* 1990;336:129-33.

Process Instead of Prayer: Moving Toward Active Management of Patient Care

Physicians have traditionally been skeptical of practice guidelines and protocols in the belief that they are too rigid to be relevant to the ever-changing, highly variable world of medicine, in the faith that good, well-trained physicians will do the right thing, at least most of the time. Numerous articles in the recent literature, however, have shown that especially in preventive medicine, where the potent reinforcers of adverse outcomes are delayed and infrequent, faith and good intentions will not get the job done.

Preventive care must be institutionalized. Systems must be developed in each primary care practice to define a process that ensures that high-quality preventive care will be offered to all patients.

Leininger and colleagues,¹ in a report sponsored by the American Cancer Society, have re-

Submitted 25 September 1997.

From the University of Rochester School of Medicine and Dentistry, Rochester; and Tri-County Family Medicine, Cohocton, NY 14826. Address reprint requests to Paul S. Frame, MD, Tri-County Family Medicine, 25 Park Ave, Cohocton, NY 14826.

cently outlined the following steps in the process of developing an office system for preventive care:

1. Writing a practice policy
2. Auditing charts for baseline performance
3. Developing and implementing a plan for efficient delivery of preventive care
4. Involving office staff
5. Monitoring progress

Carney and colleagues² were able to show that such systems could be implemented in community practices and would result in improved delivery of preventive services. They emphasized flexibility; no one system will work for all practices. Nevertheless, there are components common to all systems: the need to single out which patients need services, the need to monitor receipt of services with time, the need to reinforce positive patient behavior, and the need to provide feedback for practice members.

In this issue of the *JABFP* Block and Branham³ from the Shadyside Hospital Family Health Center eloquently describe the development of a system to ensure complete appropriate follow-up of women who have abnormal Papanicolaou smear findings. Their story illustrates that developing such systems is possible and feasible, but it also depicts the large commitment of time and energy required. The Shadyside practice has had a system for implementing preventive medicine, including an automated tracking system, since 1985.

The story really starts, as do most quality-improvement efforts and many research projects, with a practice audit. It is a sad fact that most private practices and even many residency-training programs conduct practice audits only sporadically, if at all. In my group, Tri-County Family Medicine, we have been doing routine, quarterly audits of different topics for the past 23 years. The specialists we invite to these audits routinely comment that they have not heard of other groups doing regular practice analysis. Auditing performance is essential to knowing what you are doing well and what areas need improvement. Without auditing practice patterns, a group is essentially back to practicing in the faith that good physicians will do the right thing.

At the Shadyside program, an audit in 1988 showed 93 percent of eligible women had had a Papanicolaou smear in the preceding 3 years. Many groups would have stopped at that point feeling, rightly, quite good about their preventive

efforts. Block and Branham asked "So what?" and got a less-positive answer. A 1990 audit showed that 36 percent of women with abnormal Papanicolaou smear results were overdue for follow-up. Papanicolaou smear screening is useful only if abnormal findings are appropriately observed and treated.

Block and Branham's first attempt at improving follow-up was a traditional educational intervention, which, as they reported, had limited impact. Dietrich and others⁴ have also reported little change in physician behavior from purely educational interventions, and it is clear that such interventions in the absence of a systems approach do not lead to sustained change. Block and Branham then developed a true system that involved providers, nurses, staff, and patients to ensure appropriate Papanicolaou smear follow-up. The reported results are impressive. Only 13 percent of patients were overdue for follow-up after the intervention.

Two important points should be stressed about practice management systems. First, a system is a process in which specific responsibilities are assigned to different participants; it is not a collection of tools. Block and Branham used an impressive array of tools in their system, including the computer-based tracking system, reminder letters, telephone calls, taxicab passes, and expedited appointments. Tools are a very useful and necessary part of any system, but tools alone do not constitute a system and will not change behavior. When asked whether they have a health maintenance tracking system, physicians frequently respond, "Yes, we use a flowsheet." They are confusing having a tool, which might or might not be used, with having a system that measures and ensures compliance.

The second important point is that every system must have an owner, a person who ensures that the system is used, that performance is routinely monitored, and who is willing and able to make necessary changes. Systems do not happen by themselves. No owner, no system. In the Shadyside Papanicolaou follow-up system it is clear from Figures 1 and 2 that Ruth Branham, the quality-assurance coordinator, is the owner. When someone decides on a follow-up plan, that person reports it to Ruth Branham. I have little doubt should that person fail to report to Ruth Branham, she will find him or her. She probably

also ensures that periodic audits and monitoring are completed in a timely fashion.

I was disappointed to find that Block and Branham did not describe or discuss the cost of implementing and maintaining the Papanicolaou smear follow-up system. Health care dollars are being increasingly constrained, and in most practices the cost of implementing new systems must be carefully considered no matter how worthwhile the goal. In a previous study done between 1990 and 1992, we found it cost \$0.78 per patient per year to run a computer-based health maintenance tracking system.⁵ This amount might not sound like much until you multiply it by 20,000 patients and find it equals \$15,600 spent each year. All systems cost money to implement. It is important for readers to have an awareness of the financial impact of new systems.

Prioritizing the diseases or conditions to which a practice will commit its resources for developing management systems is another important and perhaps daunting task. Block and Branham describe a system for follow-up of abnormal Papanicolaou smears, an important issue, but no more so than dozens of others encountered by physicians on a daily basis. Perhaps in an ideal world with unlimited resources, most medical activities would be systematized, though it is possible physicians might be so overloaded with guidelines, reminders, monitoring reports, and meetings they would have little time to see patients. In the absence of unlimited time and resources, practices must prioritize their management activities.

Managed care organizations tend to focus their energies on developing systems that manage such high-cost, high-volume conditions as congestive heart failure and diabetes mellitus or conditions included in the Health Employer Data Information Set (HEDIS criteria), which the National Committee on Quality Assurance uses to create report cards for managed care plans.

Fortunately, the HEDIS criteria include childhood immunizations, Papanicolaou smears, and mammograms, which are important conditions to monitor. Certainly delivery of preventive care in general should rank high on the list in all practices because it is the most common reason for primary care visits, and as mentioned earlier, the natural reinforcers of adverse outcomes are infrequent and delayed.

Although the science of developing patient management systems is well established, some of the tools, especially computer-based tracking systems, are still evolving. The work of Block and Branham, Dietrich et al, and many others has shown that effective systems do improve outcomes. All practices should be auditing their current performance, prioritizing where change is most needed, and willing to commit the necessary resources to develop systems to improve outcomes.

Paul S. Frame, MD
Cohocton, NY

References

1. 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.
2. 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.
3. Block B, Branham RA. Efforts to improve the follow-up of patients with abnormal Papanicolaou test results. *J Am Board Fam Pract* 1998;11:1-11.
4. Dietrich AJ, O'Connor GT, Keller A, Carney PA, Levy D, Whaley FS. Cancer: improving early detection and prevention. A community practice randomized trial. *BMJ* 1992;304:687-91.
5. Frame PS, Zimmer JG, Werth PL, Hall WJ, Eberly SW. Computer-based vs manual health maintenance tracking. A controlled trial. *Arch Fam Med* 1994; 3:581-8.