

## Improving and Maintaining Preventive Services Part 1: Applying the Patient Model

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Research in the past two decades has made remarkable progress in determining the variables that affect preventive care within primary care practices. The level of preventive care that a patient receives is largely determined by factors within the medical office setting. Many of these factors can be modified by physicians to encourage preventive care. An overview of these factors, presented as

the Patient Path Model, can provide a framework for systematic practice evaluation. This model can be applied to almost any office setting to help identify opportunities to enhance and improve preventive care.

*Key words.* Preventive medicine; physician-patient relations; physician practice patterns. *J Fam Pract* 1992; 34:86-91.

Physicians are generally familiar with recommendations for preventive care,<sup>1,2</sup> particularly in regard to the early detection of cancer and the need for increased efforts in smoking cessation. A most important problem, however, is how to actually implement these recommendations into routine clinical practice.<sup>3</sup> Adopting new practice patterns is not easy. Even when physicians agree with preventive care recommendations from major consensus groups, performance is generally less than expected.<sup>4-6</sup>

The daily practice habits of physicians and their office personnel are a powerful force for maintaining the level and type of services within a particular practice.<sup>3,7</sup> This factor is especially apparent when efforts are made to improve the performance of a number of preventive services (eg, mammography or flexible sigmoidoscopy). Initially, and often with little effort and planning, performance rates can improve. With time, however, performance usually returns to baseline levels.<sup>8</sup> The status quo is difficult to change, and medical practices are no exception. The importance of this problem cannot be overemphasized.

Physicians who wish to emphasize preventive medicine more in their practices should have an understanding of how practice characteristics, office systems, and habits affect the quality and patient use of the preventive services that they provide. An awareness of these factors

is an important prerequisite for improving preventive services and maintaining these improvements permanently.

This paper presents a review of the characteristics of a representative primary care office to identify opportunities for enhancing preventive care. The Patient Path Model is introduced to provide a conceptual framework for this review. Early cancer detection procedures and smoking cessation counseling are used as examples to illustrate how the model can be applied in clinical settings.

A second paper (Part 2 on page 92) outlines several principles for improving and maintaining preventive services. The model (Part 1) and principles (Part 2) have been developed from the authors' personal experiences and from a review of recent primary care intervention research. Both can serve as guides for physicians to use in overcoming practice-related barriers and in capitalizing on potential opportunities for preventive care.

### The Patient Path Model

The Patient Path Model was developed using a process called *critical path analysis*, a common technique used in many nonmedical fields.<sup>9,10</sup> The steps in the manufacturing process encountered on a typical assembly line, for example, can be analyzed as a series of potential problem areas. Difficulty at any point along the assembly line may affect the pace of production or the quality of the product. The path of a patient through a typical medical encounter in a health care facility can be studied in much the same way.

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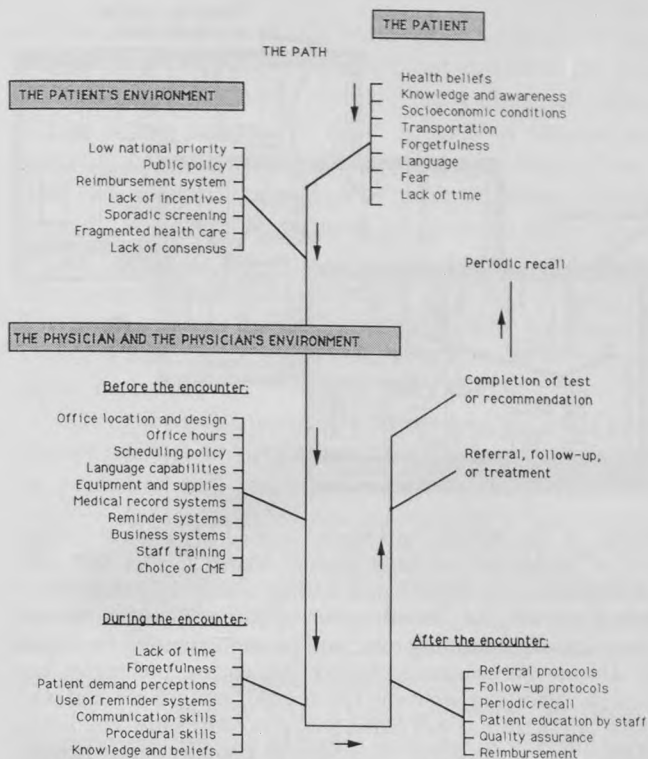


Figure 1. The Patient Path Model. This schematic diagram of a patient's path through the health care system sequences most of the major factors known to influence the provision of preventive services. Almost every known barrier or facilitator of preventive care, whether it be federal health policy or a physician's office hours, can be placed within this model.

Although simple in concept, the path of a patient through a medical encounter entails many interactions, most of which can be quite complex. These interactions have been the subject of many separate and intense studies over the past two decades. Therefore, the Patient Path Model was developed to provide a concise and systematic framework in which to review, understand, and apply this important research.

The Patient Path Model starts with the patient and then proceeds through a representative physician-patient encounter (shown schematically in Figure 1 and diagrammatically in Figure 2). Intersecting this path are the many opportunities for, and barriers to, providing preventive care.

The path crosses four spheres of influence that affect patient care. Using mammography as an example, these spheres of influence include:

1. The *patient*, who may not have knowledge of the benefits of mammography or the money to pay for the procedure;
2. The *patient's environment*, which may not provide the facilities or the encouragement for screening

(physicians have little control over this sphere of influence);

3. The *physician*, who may not be aware of the patient's family history or may not recommend the procedure;
4. The *physician's environment*, which may not include reliable reminder and follow-up systems. (Physicians can make several modifications in this environment to make mammography a routine part of their daily practice.)

The model provides a detailed look at the patient's path through an office visit (before, during, and after an encounter). The patient's path intersects almost every known barrier or facilitator of preventive care, whether it be federal health policy or a physician's office hours. Of all the spheres of influence, *the physician's practice environment is probably the most important. That is where preventive services are provided.*

## The Practice Environment: The Key to Prevention

One of the most important ideas to evolve from recent primary care research is that the delivery of preventive services can be improved by certain modifications in the physician's practice environment. Preventive services need not be a burden to physicians and patients, or be perceived as services added on only after routine care is accomplished. Rather, through modifications in the practice environment, preventive medical care can become a standard part of everyday practice. This environment can be defined as the sum of its components, which include practice characteristics, patient care systems, protocols, and even personnel.

### Practice Characteristics

The most basic components of the practice environment include office hours, location, and physical structure.<sup>7,11</sup> Even these basic considerations can present very real obstacles for women who might benefit from mammography or other preventive procedures. For example, working women may "pay double" if they have to miss work to see a physician for a referral, and then miss additional work and perhaps travel long distances to obtain the mammogram. Similarly, patient compliance with certain screening procedures, such as clinical breast examinations and sigmoidoscopy, may be encouraged if private dressing areas, gowns, and other arrangements for patient comfort are provided.

## Patient Care Systems and Protocols

Other, but by no means less important, components of the practice environment include the wide variety of medical record systems, office furnishings, and medical equipment necessary to provide effective preventive care. Flow charts and checklists of preventive procedures streamline chart review by summarizing patient history and preventive needs.<sup>12-15</sup> Brightly colored stickers call attention to high-risk patients who need to be screened more frequently. Innovative medical record systems<sup>16</sup> and effective referral and follow-up protocols (preferably written) can help to ensure that patients at high risk of developing a disease are identified, offered appropriate screening procedures, informed of abnormal findings, contacted about missed appointments, and recalled periodically for additional screening tests.

## The Physician and the Office Staff

Finally, the skills, perceptions, and attitudes of the physician and the office staff are important variables that greatly affect preventive care.<sup>7,17</sup> For example, office-based smoking cessation programs rely heavily on the participation of properly trained staff to encourage patients and to reinforce the physician's efforts.<sup>18,19</sup> The false perceptions that patients may not want preventive services such as smoking cessation counseling ("rarely successful") or mammography ("too expensive") will not be conducive to a successful preventive medicine program. Physicians and their office staff should be aware that recent surveys indicate that the majority of patients are interested in disease prevention<sup>20,21</sup> and will comply with most recommended services if appropriately offered by a physician.<sup>4</sup>

## Applying the Patient Path Model to a Practice Environment

The Patient Path Model is a tool that physicians can use to help perform self-audits on their practice environment. Just as a systematic review of charts, sometimes called a self-audit, can provide many valuable insights,<sup>22,23</sup> a systematic review of the practice environment using the Patient Path Model can also be enlightening. When applied to an actual practice setting, the model provides a systematic and practical approach for conducting such a review.

Many schematic models that are intended to simplify complex information are difficult to apply to real-life situations. With that potential criticism in mind, we elected to superimpose the model over a series of office

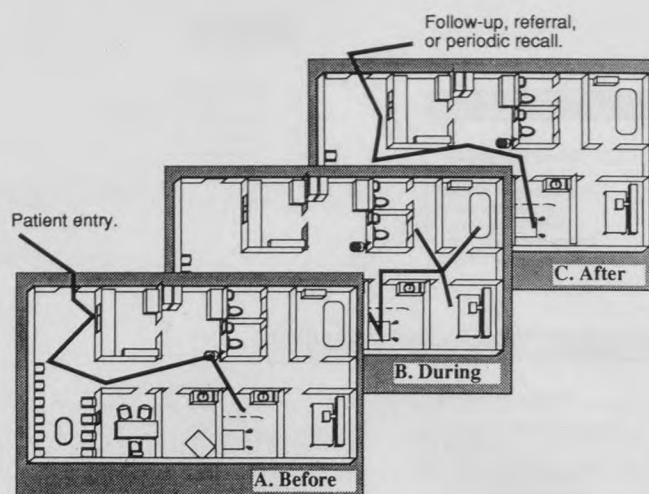


Figure 2. The Patient Path Model applied to a clinical encounter: *A. Before the encounter*, patient-related factors and office demographics are initial barriers. Once within the practice, note initial impressions, introduction to business systems, educational messages, waiting time, and prompt attention from staff. *B. During the encounter*, factors influencing preventive care include office organization (protocols), equipment and supplies, physician and staff reminders, procedure skills, counseling skills, and provisions for patient comfort and privacy. *C. After the encounter*, many factors continue to influence preventive activity, including patient education, attention to insurance provisions and codes, referral and follow-up protocols, and considerations for periodic recall.

diagrams as an example of how the model can be applied to an actual clinical setting (Figure 2). Through these diagrams (overlapped for clarity), the model becomes less a schematic and theoretical construction, and more a tool that physicians can apply, with appropriate modifications, to a variety of medical settings. Every point on the schematic model in Figure 1 can be found or added to the diagrams of a representative medical office in Figure 2.

Basic office design, office supplies and systems, and personnel (briefly described in the preceding paragraphs) are the components of the practice environment and the foundation for practice patterns. These components can be analyzed by following the patient from the time that he or she decides to seek medical care until the time that he or she completes the medical encounter, including follow-up and periodic recall.

### Before the Encounter

The patient and the patient's environment serve as the starting point for the Patient Path Model (Figure 2A). The patient's cultural background, lifestyle, health beliefs, and economic status may create many barriers to preventive care.<sup>24</sup> Similarly, elements of the patient's

environment such as public health policy, insurance regulations, and even national politics can also affect the care that an individual might receive from a physician. Most of the factors relating to these spheres of interest are generally beyond a physician's ability to control. Physicians can, however, take steps to minimize some of these barriers. For example, evening or weekend office hours can be added to accommodate those who work weekdays, often benefiting the physician as well as the patient. Physicians can also hire office personnel who are fluent in a second language to help overcome patient communication barriers.

Once the patient actually enters a physician's office (the physician's environment), another series of factors are presented that can influence the content of the encounter. A "smoke-free" waiting room will help condition patients to expect and perhaps be receptive to physician advice about smoking cessation.<sup>18,19</sup> Similarly, posters and table cards with educational messages can help activate patients to initiate discussions with their physicians regarding screening procedures.

If the patient's first contact with the physician's environment (usually speaking with the receptionist and business personnel) is negative, the patient may be reluctant to discuss services beyond his or her most pressing needs.<sup>25</sup> The length of time that a patient must wait and the tone of the initial contact with medical personnel may also influence the content of the medical encounter before the patient ever sees the physician. The quality of the medical records<sup>12,16</sup> and reminder systems,<sup>13-15</sup> staff training,<sup>14,17</sup> and physician skills<sup>26-30</sup> significantly influence the content of the actual patient-physician encounter. Without careful attention to these details before the actual encounter, a discussion of preventive services may be overlooked, avoided, or postponed.

### *During the Physician Encounter*

A number of the practice-related factors previously discussed can have a direct influence on the quality and content of the actual face-to-face medical encounter (Figure 2B). If, for example, a patient's current smoking status is recorded along with his or her vital signs, a physician with specific training in state-of-the-art smoking cessation counseling will be prompted to work a brief, but appropriate, intervention into the course of the encounter with those patients who smoke.<sup>18,19</sup>

Similarly, if a nurse-initiated reminder system<sup>14</sup> alerts the physician to a patient's need for mammography and a clinical breast examination, the physician can approach the encounter in a way that will address not only the immediate care needs of the patient, but also the demands of a busy practice. To do this most efficiently,

physicians need the communication skills to comfortably discuss and offer the procedures,<sup>26,27</sup> as well as the procedural skills to ensure that the clinical breast examination or other early cancer detection procedures are performed competently.<sup>28-30</sup> A trained and organized staff can facilitate this process by preparing the patient for the procedure (in this case a clinical breast examination), and by providing information to the patient on breast self-examination, mammography, and the location of low-cost screening facilities. In contrast, a disorganized office and poorly motivated staff will inhibit preventive care regardless of the physician's procedural skills and good intentions.

Poor physician communication skills may be one of the most important and overlooked barriers to preventive services.<sup>26,27</sup> Physicians with similar training who care for the same patient populations do not necessarily perform many early cancer detection procedures at the same rate.<sup>12</sup> Furthermore, physician sex, age, health benefits, and knowledge do not consistently account for these differences to any *clinically* significant extent.<sup>31</sup> All else being equal, differences in physician communication skills may account for the differences in the performance of certain preventive procedures.<sup>27</sup> In many cases, communication is the intervention: "As your physician, I must advise you to stop smoking now."<sup>19</sup> "Have you had a Pap smear or breast examination within the last 2 years?" [If not,] "I'd recommend you schedule an examination soon."<sup>24</sup>

The basic physical layout of an office, which has been briefly discussed, can also affect the provision of preventive services during the patient encounter.<sup>11</sup> For example, a door that opens in a direction that exposes an examination table can inhibit the performance of certain procedures, especially when patient comfort and modesty might be jeopardized. Design features that can encourage preventive care include physician-nurse communication systems, separate toilet facilities for special procedure rooms (facilitating sigmoidoscopy and other procedures), and the availability of frequently used educational materials in each examination room.

### *After the Encounter*

Even after the patient leaves the presence of the physician, practice organizational systems continue to influence compliance with screening recommendations (Figure 2C). The provision of preventive services can break down following an apparently productive office visit in spite of the physician's previous efforts and intentions.<sup>32,33</sup> For example, patient compliance with the collection of specimens for fecal occult blood tests is a frequent problem. A trained nurse might improve com-

pliance by providing the patient with careful and explicit instructions for collecting the sample. For referred procedures, such as mammography and sometimes sigmoidoscopy, written protocols will assist office staff in making the appointment and providing the patient with instructions and directions to the facility.<sup>33</sup> Follow-up protocols will help ensure that a patient complies with the physician's referral for screening procedures and that the results of the test will be reviewed by the physician and discussed with the patient.

Careful attention to insurance provisions and billing codes, flexible payment schedules, and up-to-date knowledge of low-cost screening facilities (particularly for mammography)<sup>34</sup> help minimize the financial barriers that patients may confront. Furthermore, sensitivity to these matters will encourage patients to comply with physician-referred services, and to return for follow-up and subsequent periodic care.

## Summary

The habits and routines of every clinical practice are unique and contribute greatly to the level and quality of preventive health care activity within that practice. Even after problem areas within a practice have been identified, making the changes that are necessary to provide effective preventive health care services is not easy. Nor will these problems be greatly affected by the development and even the acceptance of a list of recommendations. That is why knowledge of preventive care guidelines is not enough.

The first step toward improving the preventive health care services within a clinical practice should include a thorough review of current performance.<sup>35</sup> Next, the Patient Path Model can be used to identify opportunities for resolving any problems that exist. Once these problems and the appropriate opportunities for their resolution are identified, long-term goals can be established. Several principles for improving preventive services in primary care practices are discussed in the following companion article. Those principles and the Patient Path Model (Figures 1 and 2) should help physicians identify and avoid many of the pitfalls that can frustrate efforts to improve preventive care.

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