

# Determinants of Counseling in Primary Care Pediatric Practice

## Physician Attitudes About Time, Money, and Health Issues

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**Objectives:** To assess pediatrician goals and practice in preventive counseling, and to use social learning theory to examine physician attitudes about preventive health issues, time, and reimbursement to explain physician counseling behavior.

**Design:** Random sample survey of American Academy of Pediatrics fellows.

**Participants:** A total of 1620 pediatricians were surveyed with a return rate of 72%. The 556 pediatricians who had finished training and who currently performed child health supervision were included.

**Methods:** Pediatricians were asked about their goals in 6 areas of health supervision: biomedical issues, development, behavior, family functioning, safety education, and supportive interpersonal interaction. They were also asked about the prevalence of counseling, importance of specific topics, their self-efficacy, outcome expectation in these areas, and their concerns about time and reimbursement for preventive counseling.

**Results:** Assurance of physical health and normal development were the most important goals of child health supervision among the pediatricians surveyed. Goals involving behavioral, family, and safety issues were less important and less likely to be addressed in practice. Most

did not regularly discuss family stress, substance abuse, gun safety, and television. In these areas, physicians had less confidence they could provide guidance and lower expectation that they could prevent problems. Only 17% felt that they receive adequate reimbursement for preventive counseling. Most have adequate time (53%) and receive adequate respect (57%) for their preventive efforts. Physicians who were more concerned about time for preventive counseling reported less overall counseling ( $r = -0.28$ ,  $P < .001$ ). Concern about reimbursement was not associated with reported counseling. Multiple regression analysis found that the primary predictors of physician counseling were an issue's importance, a physician's perceived self-efficacy, and perceived effectiveness of counseling, while concerns about time and reimbursement were secondary.

**Conclusions:** Physician goals in child health supervision were primarily biomedical, with psychosocial and safety issues of lesser importance. Concern about time for preventive counseling was associated with less reported counseling. Physician attitudes regarding the importance of a health issue and their confidence and effectiveness in counseling were more predictive of physician practice than their attitudes about time and reimbursement for preventive care.

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**Editor's Note:** We should feel good that concerns about time and reimbursement were secondary predictors of pediatrician counseling. However, counseling about psychosocial and safety issues was also of secondary importance. Is there a connect/disconnect?

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**I**NCREASING RECOGNITION of the growing role of psychosocial and behavioral issues affecting health has brought renewed attention to primary care counseling and prevention. The American Academy of Pediatrics (AAP) has emphasized the role of the pediatrician in the prevention, early detection, and management of various behav-

ioral, developmental, and social functioning problems encountered in pediatric practice (often called "the new morbidity").<sup>1</sup> The publication of *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*<sup>2</sup> and the updated AAP *Guidelines for Health Supervision III*<sup>3</sup> have reemphasized the goals of preventive health care for children. The ultimate effect of new guidelines is dependent on diffusion into patient care. Numerous studies have documented this shortcoming.<sup>4-6</sup> In this era of practice guidelines and recommendations, it is important to assess current practice and implementation issues in primary care counseling. Whether and how guidelines

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## PARTICIPANTS, MATERIALS, AND METHODS

### STUDY DESIGN AND SAMPLE

This study was part of the periodic surveys of fellows conducted by the Division of Child Health Research of the AAP. These surveys of AAP membership are performed 4 times a year and include a random sample of US members. About 73.5% of US board-certified pediatricians are members of the AAP (AAP Department of Membership, written communication, 1996).

### QUESTIONNAIRE

The questionnaire was an 8-page, self-administered, forced-choice survey mailed to 1620 AAP members. After pretesting, an original mailing and 4 follow-up mailings were sent. The survey was accompanied by a cover letter from the executive director of the AAP and a postage-paid return envelope. Pediatricians were asked their opinion on the frequency of preventive child health supervision visits recommended by the AAP and goals related to 6 areas of health supervision: biomedical, development, behavior, family functioning, safety education, and supportive interpersonal interaction. These areas were chosen from current preventive care recommendations and effectiveness studies in the pediatric literature.<sup>2,3</sup>

Physicians were also asked about the prevalence of counseling on 15 specific topics. Additional questions using social learning theory to understand physician

counseling were asked. For each topic, physicians were asked about their self-efficacy ("What is your level of confidence in providing guidance on the topic?"), outcome expectation ("How much can you do to prevent these problems?"), and the value or importance of the particular issue ("How important is the topic to the health of children in general?"). Environmental issues that may influence general counseling behavior were addressed. They were asked to indicate their level of agreement with a statement about time issues ("I usually do not have enough time to provide counseling to parents about changing health-related behaviors.") and reimbursement ("I get adequate reimbursement for my preventive efforts.").

Demographic information including sex, age, practice type and location, and proportion of managed care patients was also obtained. The survey instrument was developed with the help of the AAP Committee on Psychosocial Aspects of Child and Family Health and the AAP Council on Pediatric Research.

### DATA ANALYSIS

Characteristics of the sample were summarized using descriptive statistics. Multivariate stepwise analyses were performed with counseling practice as the independent variable. Hypothesis testing focused on the predictive significance of the 5 social learning theory constructs with inclusion ( $P \leq .10$ ) and exclusion ( $P \geq .15$ ) criteria for variables to enter and be removed from the model. All dependent variables were measured on a Likert scale; because of skewness, responses were logarithmically transformed.

and recommendations are integrated into primary care practice and what motivates practitioners are critically important.

The literature has described the unique opportunity in primary care to influence patient behavior and the effectiveness of brief preventive health counseling interventions.<sup>7-10</sup> Clinicians have been challenged to address numerous issues in practice, from smoke exposure and dietary issues to firearms and family substance abuse. Nonetheless, surveys of physicians have reported low levels of counseling on many preventive issues.<sup>11-18</sup> Green et al<sup>19</sup> and Lawrence<sup>20</sup> have conceptualized predisposing, enabling, and reinforcing factors influencing physician behavior in preventive care. These authors and others have suggested that lack of time and money contribute to low levels of counseling and preventive services.<sup>17,18,21-25</sup> Few studies, however, have assessed the effect of physicians' attitudes about time, reimbursement, and health issues in relationship to their counseling practice. Most studies have looked at specific counseling issues without a broader perspective of physician behavior across issues.

This study assesses pediatricians' attitudes about health issues in pediatric anticipatory guidance and concerns about time and reimbursement in preventive counseling. Social learning theory has been recognized as a predictor of health-related behavior change and maintenance and acknowledges the relationship among behavioral, personal, and environmental influences.<sup>26-30</sup> The

theory postulates that behavior is determined by expectancies and incentives. Expectancies include self-efficacy (one's own competence to perform the behavior needed to influence outcomes) and outcome expectation (opinion about how one's behavior is likely to influence outcomes). Incentive is defined as the value or importance of a particular outcome. Describing physician counseling in the context of this model affords a deeper understanding of physician behavior and avenues for enhancing physician counseling practices.

## RESULTS

### CHARACTERISTICS OF RESPONDENTS

A random sample of 1620 AAP fellows was surveyed. A total of 1163 completed surveys were returned, for a response rate of 72%. Residents ( $n = 188$ ), those stating that they spend no time in preventive care ( $n = 360$ ), and those with 0 patient visits per week ( $n = 121$ ) were eliminated. The 556 pediatricians who had finished training and currently performed child health supervision were included in the analysis.

Respondents had a mean age of 44 years, with 58% female and 42% male. Overall, 29% of respondents were in a solo or 2-physician practice, 43% were in group practice, 10% were in staff model health maintenance organizations, and the remainder were in other practice settings. Thirteen percent described their practice location

as rural, 47% suburban, and 38% urban. Respondents reported seeing an average of 111 patients per week. Most respondents had some managed care patients, with a mean of 53% (SD, 32.7%) managed care patients among insured patients in their practice.

### REPORTED CHILD HEALTH SUPERVISION GOALS AND PRACTICES

Physicians were asked how many preventive care visits they recommend for patients aged birth to 12 years, including visits to a physician and/or nurse practitioner. Respondents reported an average of 9.1 visits in the first 2 years (excluding prenatal or hospital nursery visits) and 7.8 visits after the 2-year visit through age 12 years. Most believed that the AAP periodicity schedule for preventive care (physician visits at ages 2-4 weeks; 2, 4, 6, 12, 15, 18, and 24 months; and 3, 4, 5, 6, 8, 10, and 12 years) was appropriate for their patient population and children in general. For children aged 0 to 2 years, 78% believed there were an appropriate number of recommended visits, 12% stated there were too many, and 11% stated there were too few. For children aged 3 to 12 years, 68% stated that the number of visits was appropriate, 15% stated there were too many, and 17% stated there were too few. When asked about the effect on their patients' health if preventive visits at ages 0 to 2 years were twice as often, 54% believed there would be no effect, 27% predicted a positive effect, and 20% predicted a negative effect. For children aged 3 to 12 years, 50% believed more frequent visits would have no effect, 33% predicted a positive effect, and 17% predicted a negative effect. If preventive visits were half as often, 91% and 80% believed there would be a negative effect on patient health for the age groups 0 to 2 years and 3 to 12 years, respectively. When asked how often they vary the content and emphasis of preventive care visits, most (81%) said occasionally or often. When asked how often they vary the number of preventive care visits, 23% stated that they did so rarely, 44% occasionally, and 24% often.

Physicians were asked, "During preventive care visits, who usually asks most of the questions and determines the topics of discussion?" Eighty-two percent stated that this was done predominantly by the physician and 18% stated that it was predominantly the parent. When physicians were asked, "Who would you prefer to ask the questions and determine the topics of discussion?" 52% stated the physician and 48% stated the parent.

Physicians were asked about their goals for preventive care visits in 6 areas of health supervision: biomedical, development, behavior, family functioning, safety education, and supportive interpersonal interaction. They were asked to assess the importance of these goals in preventive care visits and rate how well they think they achieve these goals (**Table 1**). All goals were individually rated as very important. Ensuring physical health of children ranked the highest among the 6 goals. Most respondents thought they were good to excellent at achieving these goals, especially in areas of physical health, development, and developing a supportive relationship. Lower proportions of respondents felt they were good to excellent at ensuring a healthy family environment (50%), ensur-

**Table 1. Physician Goals in Child Health Supervision and Opinion Regarding Whether the Goals Are Achieved in Practice (N = 556)**

Well-Child/ Preventive Care Goal*	Importance†		Achievement, % Scoring Good to Excellent‡
	% Scoring Somewhat to Very Important	Mean Rank‡ (SD)	
To ensure the physical health of children	97	1.8 (1.3)	97
To ensure normal development of children	98	2.6 (1.0)	91
To ensure the emotional health of children and deal with behavior problems	94	4.0 (1.1)	70
To ensure a healthy family environment	85	5.2 (1.2)	50
To develop a supportive relationship	96	3.3 (1.7)	89
To educate parents about safety issues	93	4.1 (1.3)	73

\*Physicians were asked to rank these 6 goals of child health supervision.

†Possible responses were coded on a 7-point Likert scale ranging from not important (7) to very important (1).

‡Possible responses were coded on a 7-point Likert scale ranging from poor to excellent.

ing emotional health and dealing with behavior problems (70%), and educating about safety issues (73%).

### PHYSICIAN ATTITUDES ABOUT TIME, REIMBURSEMENT, AND RESPECT FOR HEALTH PROMOTION ACTIVITIES

Fifty-three percent of respondents agreed that they do "have enough time to provide counseling to parents about changing health-related behaviors," with 29% disagreeing and 18% neutral. Fifty-seven percent agreed that, "In general, I get adequate respect for my preventive efforts" (20% disagreeing, 23% neutral). Only 17% agreed that, "I get adequate reimbursement for my preventive efforts" (62% disagreeing, 21% neutral). There were no significant relationships between percentage of patients in managed care and concerns about time or reimbursement for preventive efforts (time,  $r = 0.07$ ; reimbursement,  $r = 0.12$ ).

An overall counseling score was computed for each physician that was a sum of all responses on prevalence of counseling in the 15 areas. Those more concerned about time for preventive counseling reported less overall counseling ( $r = -0.28$ ,  $P < .001$ ). There was no significant relationship between overall counseling and concern about reimbursement ( $r = -0.03$ ). Concern about time and reimbursement were somewhat related ( $r = -0.11$ ,  $P < .01$ ).

### COUNSELING PREVALENCE AND ATTITUDES ABOUT SPECIFIC HEALTH ISSUES

Physicians were asked about 15 specific preventive care topics. **Table 2** presents data on how often they address each of the issues as part of age-appropriate routine well-child visits. Biomedical, developmental, and

**Table 2. Physician Report of Whether Specific Topics Are Discussed in Child Health Supervision (N = 556)\***

Well-Child/ Preventive Care Topic	% Scoring Never or Occasionally	% Scoring Often or Always
Growth and nutrition	1	98
Physical illness	2	93
Language development	4	92
Physical development	2	92
Sleep problems	6	83
Discipline	7	68
Car safety	16	55
Poisoning	13	60
Bike safety	24	60
Gun safety	64	21
Family substance abuse	61	23
Family stress	27	47
Harm of passive smoke	17	67
Advise parents to stop smoking	19	67
TV watching/TV violence	44	35

\*Possible responses were coded on a 7-point Likert scale: 1, never/rarely; 3, occasionally; 5, often; and 7, always.

some behavioral issues were often or always discussed. Safety and family issues were less frequently addressed. Many respondents never or only occasionally discussed family substance abuse, gun safety, or television.

Physicians were asked about each of these topics within the context of social learning theory constructs of importance, self-efficacy, and outcome expectation. Physician ratings for each topic are presented in **Table 3**. All of the 15 health topics were believed to be issues of great importance by most respondents. Most had a high degree of confidence in counseling in these areas, with lower confidence on issues of gun safety, family stress, and substance abuse. Fewer respondents believed they were able to prevent problems (outcome expectation), especially those related to gun injuries, family problems, passive smoke, and television.

#### DETERMINANTS OF COUNSELING PRACTICE

Multiple regression analyses were performed to ascertain if social learning theory constructs on importance of the topic, self-efficacy, outcome expectation, and general attitudes about time and reimbursement could predict physician responses regarding counseling practice. Social learning theory predictors explained 25% to 47% of the variability, depending on the topic (**Table 4**). In all areas, importance of the issue and physician confidence in counseling were the most significant predictors of physician practice. Attitudes about time and reimbursement were not primary predictors and often did not enter the model.

Physicians were additionally asked about factors that determine the content and emphasis of their preventive care visits (**Table 5**). Experience as a physician, comfort and knowledge in topics of discussion, and perception of their effectiveness in counseling were felt to be most important among the 12 factors queried.

**Table 3. Physician Responses on Social Learning Theory Constructs of Health Importance, Self-efficacy, and Outcome Expectation to Prevent Problems (N = 556)\***

Topic/Problem	% Scoring Quite a Bit to a Lot			R <sup>2</sup>
	Importance of Problem	Level of Confidence in Counseling	Ability to Prevent Problem	
Growth and nutrition	98	98	88	0.40
Physical illness	96	99	71	0.25
Language development	97	92	66	0.38
Physical development	94	98	65	0.30
Sleep problems	79	93	67	0.33
Discipline	90	89	62	0.37
Car safety	93	96	71	0.34
Poisoning	92	95	80	0.31
Bike safety	89	92	69	0.35
Gun safety	78	68	38	0.28
Family substance abuse	87	58	23	0.27
Family stress	88	66	28	0.32
Harm of passive smoke	90	93	56	0.34
Advise parents to stop smoking	86	81	44	0.47
TV watching/violence	77	76	35	0.35

\*Possible responses were coded on a 7-point Likert scale: 1, a little; 3, some; 5, quite a bit; and 7, a lot.

#### COMMENT

As morbidity and mortality in pediatrics have shifted and guidelines for preventive practice have evolved, it is critical to monitor change in practice and obstacles to change. This study evaluated physician goals and counseling practices in child health supervision. Previous studies have largely focused on physician attitudes and practice regarding single prevention issues and have rarely addressed issues of time and reimbursement. We present a social learning theory approach to understanding physician priorities. This approach provides insight into physician attitudes regarding health promotion topics and a theoretical foundation for improving primary care practice.

Physician goals in child health supervision were primarily biomedical, with psychosocial and safety issues of lesser importance. Studies have found that mothers expect a biomedical orientation in child health supervision visits but often have more psychosocial concerns.<sup>31</sup> In this study, physicians stated that they usually ask most of the questions and determine the topics of discussion, although many prefer parents to be more involved. According to physicians, a parent's interest in topics was very important in determining the content and emphasis of preventive visits. If providers wish to increase involvement of parents and address psychosocial concerns, physicians must raise pertinent issues or allow parents to take the lead. It must be made clear that psychosocial as well as biomedical issues are part of the visit and that parental questions are the focus. Use of tools like previsit patient checklists or questionnaires may aid in identifying concerns of parents in an efficient manner. In addition to provider encouragement, a broader campaign to change and expand public expectations about health supervision visits may be needed to address the new morbidity.



**Table 4. Physician Report About Counseling in Health Supervision Predicted by Social Learning Theory Constructs (N = 556)\***

Topic/Problem	Predictors of Physician Counseling, $\beta$ Values					$R^2$
	Importance of Problem	Level of Confidence	Ability to Prevent Problem	Time	Reimbursement	
Growth and nutrition	.35	.37	...	...	...	0.39
Physical illness	.41	.20	...	...	...	0.25
Language development	.38	.33	...	...	...	0.38
Physical development	.36	.26	...	...	...	0.30
Sleep problems	.39	.23	.08	...	...	0.33
Discipline	.42	.17	.11	-.12	-.06	0.38
Car safety	.25	.35	.17	-.06	...	0.36
Poisoning	.28	.31	.08	-.12	...	0.33
Bike safety	.19	.31	.24	...	...	0.35
Gun safety	.22	.29	.16	...	...	0.27
Family substance abuse	.17	.36	.14	...	...	0.25
Family stress	.27	.28	.13	-.13	-.06	0.32
Harm of passive smoke	.35	.23	.14	-.08	...	0.35
Advise parents to stop smoking	.41	.32	...	-.09	-.08	0.47
TV watching/violence	.28	.24	.21	...	-.07	0.33

\*Ellipses indicate not applicable.

We found that discussion of some issues was related to physician factors, including self-efficacy, importance of the health issue, and expectation of effectiveness. Social learning theory has been found to have high predictive validity in explaining behavior and explained 25% to 47% of the variability in counseling practice. The issues of family stress and substance abuse, gun safety, and television were less frequently discussed and were associated with lower health importance, self-efficacy, and outcome expectation.

It is encouraging that despite the pressures on physicians today, these data suggest that issues of time and money were not the primary factors affecting prevention counseling. Although there was a relationship between time and overall counseling, in multiple regression analysis the influence of general attitudes about time and reimbursement for prevention were not as strong in explaining counseling practice as issue importance and physician self-efficacy. Other studies have found that adequate reimbursement for preventive services does not ensure physician provision of these services, which confirms the importance of other motivators.<sup>32</sup> Nonetheless, concerns about time were associated with rate of overall counseling. Clearly, time and reimbursement must be sufficient to allow for or maintain current levels of preventive counseling. It is possible that with continuing changes in the health care delivery system and growing penetration of capitated managed care, time and reimbursement issues may play a greater role in influencing preventive care practice.

Self-efficacy is a central concept in social learning theory and was found to be a strong predictor of physician behavior in all 15 topic areas studied. When asked generally about factors that determine the content and emphasis of their preventive care visits, experience as a physician and comfort and knowledge about a topic were most important. Other research has found that many physicians lack confidence in their ability to motivate behavior change.<sup>22,33,34</sup> Building physician self-efficacy in preventive counseling must be a priority.

**Table 5. Physician Report of Factors Determining the Content and Emphasis of Health Supervision Visits (N = 566)\***

Factor	% Stating Important
Your experience as a physician	96
Your comfort and knowledge of topics	93
Your perception of effectiveness of the topic	92
A parent's interest in topics	89
Your experience as a parent	79
American Academy of Pediatrics guidelines	78
Your time availability	77
Parenting experience of the child's parent	76
Health status of the child	74
How well you know the family	71
Your residency training	63
Socioeconomic status of the family	51

\*Possible responses were coded on a 5-point Likert scale: 1, not important; 3, neutral; and 5, very important.

According to social learning theory, efficacy expectations are derived from 4 sources: personal experience (the most powerful), vicarious experience or observing models, verbal persuasion through didactic learning, and emotional arousal.<sup>35</sup> These educational strategies can be incorporated into interventions for physicians and patients alike.

Importance of the health problem was another factor determining the content and emphasis of preventive visits. Most physicians believed that all the 15 topics were issues of great importance. Education on the importance of specific health problems affecting children may influence physician priorities. Though not as strong a predictor as self-efficacy, perception of the effectiveness of counseling (outcome expectation) was very important in several of the topic areas. Research must continue on the effectiveness of specific preventive strategies and results must be disseminated to practitioners.

This study provides a wealth of information about individual topics in health promotion. For example, most

physicians (67%) reported often or always discussing parental smoking in child health supervision. Parental smoking was believed to be an important health problem by 86%, and 81% were confident in counseling on this issue. Only 44%, however, believed they were able to prevent problems related to parental smoking. Social learning theory constructs explained 47% of the variability in physician practice, and perceived self-efficacy and health importance were significant factors. This analysis suggests that emphasizing the importance of the passive smoke problem and enhancing physician skills and confidence in parental smoking cessation may increase physician counseling.

These findings have important implications for undergraduate, postgraduate, and continuing medical education. Although personal experience as a physician or as a parent were rated higher, 63% of physicians stated that residency training was an important factor in determining the content and emphasis of health supervision visits. Preventive medicine training at all levels which improves counseling skills and self-efficacy are needed for physicians to attempt counseling and gain experience and confidence.

Potential study limitations should be addressed. This national survey of pediatricians had a high response rate (72%); however, its generalizability to other disciplines and other preventive issues is unclear. Nonetheless, it is likely that the social learning theory framework and general findings may apply. In addition, social desirability bias may have overestimated the counseling behavior of physicians and self-report of counseling behavior may be different from actual practice. Reporting of factors that influence counseling may be less subject to bias.

Finally, this study did not address all the facilitators and barriers to health promotion in primary care. Pathman et al<sup>36</sup> have identified the cognitive and behavioral steps physicians must take to comply with clinical guidelines, including awareness of guidelines, agreement, adoption in patient care, and regular adherence at appropriate times. Incentives and disincentives are present at each step. Green et al<sup>19</sup> and Lawrence<sup>20</sup> have conceptualized predisposing (knowledge, attitudes, beliefs, values, perceptions), enabling (skills, reimbursement, time, office systems, coherent guidelines), and reinforcing (visible results, colleague support, feedback, physician self-efficacy) factors that influence physician behavior in preventive care. Others have emphasized that favorable attitudes alone are not sufficient to increase preventive care but that other facilitators, including supportive office systems, reminder systems, feedback, incorporation into managed care guidelines, and skills training, must be addressed.<sup>37-43</sup> Collaborative efforts to identify needs, capabilities, and concerns of involved individuals with active participation of practitioners may enhance effectiveness.<sup>43-45</sup> The patients' perspectives and their receptiveness to preventive counseling must also be addressed.<sup>46-48</sup>

In this era of practice guidelines and challenges to physicians to address the medical and social ills of their patients, understanding what motivates practitioners to accept and embrace these challenges is of critical impor-

tance. It is not enough to simply disseminate guidelines or write recommendations to change physician behavior, but understanding and addressing facilitators and barriers to implementation are needed. This study begins to explore some key implementation issues and provides insight into the knowledge, skills, and support necessary to enhance preventive care counseling.

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## REFERENCES

1. American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health. The pediatrician and the "new morbidity." *Pediatrics*. 1993; 92:731-732.
2. Green M, ed. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents*. Arlington, Va: National Center for Education in Maternal and Child Health; 1994.
3. American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health. *Guidelines for Health Supervision III*. Elk Grove Village, Ill: American Academy of Pediatrics; 1997.
4. Lomas J, Anderson GM, Domnick-Pierre K, Vayda E, Enkin MW, Hannah WJ. Do practice guidelines guide practice? the effect of a consensus statement on the practice of physicians. *N Engl J Med*. 1989;321:1306-1311.
5. Koseoff J, Kanouse DE, Rogers WH, McCloskey L, Winslow CM, Brook RH. Effects of the National Institutes of Health Consensus Development Program on physician practice. *JAMA*. 1987;258:2708-2713.
6. McPhee SJ, Richard RJ, Solkowitz SN. Performance of cancer screening in a university general internal medicine practice: comparison with the 1980 American Cancer Society guidelines. *J Gen Intern Med*. 1986;1:275-281.
7. Korsch B, Negrete VE. Doctor-patient communication. *Sci Am*. 1972;227: 66-74.
8. Green M. Behavioral and developmental components of child health promotion: how can they be accomplished? *Pediatr Rev*. 1986;8:1-9.
9. Fleming MF, Barry KL, Johnson K, London R. Brief physician advice for problem alcohol drinkers: a randomized controlled trial in community-based primary care practices. *JAMA*. 1997;277:1039-1045.
10. Beresford SAA, Curry SJ, Kristal AR, Lazovich D, Feng Z, Wagner EH. A dietary intervention in primary care practice: the eating patterns study. *Am J Public Health*. 1997;87:610-616.
11. Jaen CR, Stange KC, Turniel LM, Nutting P. Missed opportunities for prevention: smoking cessation counseling and the competing demands of practice. *J Fam Pract*. 1997;45:348-354.

12. Webster DW, Wilson MEH, Duggan AK, Pakula LC. Firearm injury prevention counseling: a study of pediatricians' beliefs and practices. *Pediatrics*. 1992;89:902-907.
13. Olson LM, Christoffel KK, O'Connor KG. Pediatricians' experience with and attitudes toward firearms. *Arch Pediatr Adolesc Med*. 1997;151:352-359.
14. Centers for Disease Control and Prevention. Missed opportunities in preventive counseling for cardiovascular disease—United States, 1995. *MMWR Morb Mortal Wkly Rep*. 1998;47:91-95.
15. Anda RF, Remington PL, Sienko DG, Davis RM. Are physicians advising smokers to quit? the patient's perspective. *JAMA*. 1987;257:1916-1919.
16. Wells KB, Lewis CE, Leake B, Schleiter MK, Brook RH. The practices of general and subspecialty internists in counseling about smoking and exercise. *Am J Public Health*. 1986;76:1009-1013.
17. Henry RC, Ogle KS, Snellman LA. Preventive medicine: physician practices, beliefs, and perceived barriers for implementation. *Fam Med*. 1987;19:110-113.
18. Gemson DH, Elinson J. Prevention in primary care: variability in physician practice patterns in New York City. *Am J Prev Med*. 1986;2:226-234.
19. Green LW, Eriksen MP, Schor EL. Preventive practices by physicians: behavioral determinants and potential interventions. *Am J Prev Med*. 1988;4:101-107.
20. Lawrence RS. Diffusion of the US Preventive Services Task Force Recommendations into practice. *J Gen Intern Med*. 1990;5(suppl):S99-S103.
21. Kottke TE, Brekke ML, Solberg LI. Making "time" for preventive services. *Mayo Clin Proc*. 1993;68:785-791.
22. Rosen MA, Logsdon DN, Demak MM. Prevention and health promotion in primary care: baseline results on physicians from the INSURE Project on Lifecycle Preventive Health Services. *Prev Med*. 1984;13:535-548.
23. Battista RN, Williams JI, MacFarlane LA. Determinants of primary medical practice in adult cancer prevention. *Med Care*. 1986;24:216-226.
24. McGinnis JM, Hamburg MA. Opportunities for health promotion and disease prevention in the clinical setting. *Western J Med*. 1988;149:468-474.
25. McPhee SJ, Bird JA. Implementation of cancer prevention guidelines in clinical practice. *J Gen Intern Med*. 1990;5:S116-S122.
26. Rosenstock IM, Strecher VJ, Becker MH. Social learning theory and the health belief model. *Health Educ Q*. 1988;15:175-183.
27. Bandura A. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall; 1977.
28. Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev*. 1977;84:191.
29. Bandura A. Self-efficacy mechanism in human agency. *Am Psychol*. 1982;37:122.
30. Bandura A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall; 1986.
31. Hickson GB, Altemeier WA, O'Connor S. Concerns of mothers seeking care in private pediatric offices: opportunities for expanding services. *Pediatrics*. 1983;72:619-624.
32. Lurie N, Manning WG, Peterson C, et al. Preventive care: do we practice what we preach? *Am J Public Health*. 1987;77:801-804.
33. Valente CM, Sobal J, Muncie HL, Levine DM, Antlitz AM. Health promotion: physicians' beliefs, attitudes, and practices. *Am J Prev Med*. 1986;2:82-88.
34. Wechsler H, Levine S, Idelson RK, Schor EL, Coakley E. The physician's role in health promotion revisited: a survey of primary care practitioners. *N Engl J Med*. 1996;334:996-998.
35. Rimer BK. The role of theory in improving primary care practice. Agency for Health Care Policy and Research Conference Proceedings: Primary Care Research: Theory and Methods. Washington, DC: US Dept of Health and Human Services, 1991: 183-188.
36. Pathman DE, Konrad TR, Freed GL, Freeman VA, Koch GG. The awareness-to adherence model of the steps to clinical guideline compliance: the case of pediatric vaccine recommendations. *Med Care*. 1996;34:873-889.
37. Solberg LI, Brekke ML, Kottke TE. How important are clinician and nurse attitudes to the delivery of clinical preventive services? *J Fam Pract*. 1997;44:451-461.
38. Medder J, McIlvain HE, Susman JL, et al. Dissemination and implementation of Put Prevention Into Family Practice. *Am J Prev Med*. 1997;13:345-344.
39. Cohen DI, Littenberg B, Wetzel C, Neuhauser DV. Improving physician compliance with preventive medicine guidelines. *Med Care*. 1982;20:1040-1045.
40. Rosser WW, McDowell I. Preventive practices by physicians: behavioral determinants and potential interventions. *Am J Prev Med*. 1988;4:108-110.
41. Cohen SJ, Halvorsen HW, Gosselink CA. Changing physician behavior to improve disease prevention. *Prev Med*. 1994;23:284-291.
42. McPhee SJ, Detmer WM. Office-based interventions to improve delivery of cancer prevention services by primary care physicians. *Cancer*. 1993;72:1100-1112.
43. Orlandi MA. Promoting health and preventing disease in health care settings: analysis of barriers. *Prev Med*. 1987;16:119-130.
44. Green LW. The theory of participation: a qualitative analysis of its expression in national and international policies. *Adv Health Educ Promot*. 1986;1:211-236.
45. Lee TH, Cooper HL. Translating good advice into better practice. *JAMA*. 1997;278:2108-2109.
46. Korsch BM. What do patients and parents want to know? what do they need to know? *Pediatrics*. 1984;74:917-919.
47. Walsh JM, McPhee SJ. A systems model of clinical preventive care: an analysis of factors influencing patient and physician. *Health Educ Q*. 1992;19:157-175.
48. Bauchner H, Simpson L. Specific issues related to developing, disseminating, and implementing pediatric practice guidelines for physicians, patients, families, and other stakeholders. *Health Serv Res*. 1998;38:1161-1177.