

Preventive care and barriers to effective prevention

How do family physicians see it?

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OBJECTIVES To assess how adequately family physicians think they are delivering preventive care and to examine barriers to providing preventive care.

DESIGN Cross-sectional survey.

SETTING Primary care medical practices in south-central Ontario.

PARTICIPANTS Four hundred eighty family physicians and general practitioners who graduated from medical school between 1972 and 1988.

MAIN OUTCOME MEASURES Satisfactory preventive care delivery versus self-assessed coverage of patients for 15 preventive maneuvers. Perceived reasons for lack of success in providing recommended preventive care.

RESULTS For 10 of the 15 maneuvers, the proportion of physicians who regarded 90% or higher as satisfactory coverage was twice as great as the proportion who thought they provided that level of coverage. For 11 of the 15 maneuvers, most respondents reported coverage lower than the level they regarded as satisfactory. For six maneuvers, more than two thirds thought they provided less than satisfactory coverage. More than two thirds of respondents suggested these barriers to providing recommended preventive care: patient is healthy and does not visit; patient refuses, is not interested, or does not comply; no effective systems to remind patients to come in for preventive care; and priority given to presenting problem.

CONCLUSION Many family physicians and general practitioners in south-central Ontario provide preventive care to their patients at lower levels than they consider satisfactory. They identified barriers to providing preventive services successfully; these barriers suggest approaches for improving care.

OBJECTIFS Évaluer la perception des médecins concernant la qualité des soins préventifs qu'ils dispensent et analyser les obstacles à la prestation des soins préventifs.

CONCEPTION Enquête transversale.

CONTEXTE Cliniques de soins médicaux de première ligne du Centre et du Sud de l'Ontario.

PARTICIPANTS Quatre cent huit médecins de famille et omnipraticiens qui ont reçu leur diplôme de médecin entre 1972 et 1988.

PRINCIPALES MESURES DES RÉSULTATS Prestation satisfaisante des soins préventifs comparativement à l'auto-appréciation de leur efficacité à appliquer 15 interventions préventives. Raisons perçues pour l'insuccès à dispenser les soins préventifs recommandés.

RÉSULTATS Peu de médecins avaient l'impression que leur niveau de couverture était satisfaisant. Pour 10 des 15 interventions, la proportion des médecins, qui avaient établi que le taux de couverture était satisfaisant lorsque l'intervention était appliquée dans 90% des cas, fut deux fois plus élevée que la proportion de ceux qui pensaient offrir ce niveau de couverture. Pour 11 des 15 interventions, la plupart des répondants ont mentionné que leur niveau de couverture était inférieur au niveau qu'ils jugeaient satisfaisant. Pour six interventions, plus des deux tiers avaient l'impression d'offrir un niveau de couverture non satisfaisant. Plus des deux tiers des répondants ont mentionné les obstacles suivants à la prestation des soins préventifs recommandés : le patient est en bonne santé et ne consulte pas ; le patient refuse, n'est pas intéressé ou ne respecte pas les recommandations ; absence de système efficace pour rappeler aux patients de consulter pour des soins préventifs ; et priorité accordée à la raison de consultation.

CONCLUSION De nombreux médecins de famille et omnipraticiens du Centre et du Sud de l'Ontario dispensent des soins préventifs à leurs patients à un niveau inférieur à celui qu'ils considèrent satisfaisant. Ils ont identifié les obstacles qui les empêchent d'offrir des soins préventifs adéquats ; ces obstacles suggèrent des approches pour améliorer la qualité des soins.

Can Fam Physician 1996;42:1693-1700.

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RESEARCH

Preventive care and barriers to effective prevention

STUDIES OF A RANGE OF PREVENTIVE MANEUVERS have demonstrated in various primary care settings that many, often most, eligible patients do not receive recommended preventive services.¹⁻¹⁵ Even when efforts are made to improve preventive care, coverage often falls far short of target levels.⁷⁻¹⁵ What are physicians' perceptions regarding preventive care? Do physicians consider preventive interventions unimportant? What levels of preventive care do they regard as satisfactory? What levels of coverage do they think they are achieving, and how do these compare with those they consider desirable? What do physicians see as the main barriers to providing satisfactory preventive care?

Information on the relationship between physicians' perceptions of the importance of preventive maneuvers and their performance of those maneuvers is scanty. Dietrich and Goldberg¹⁶ showed a correlation between importance rating and performance of seven preventive maneuvers ($r = 0.45$). However, several interventions (tetanus immunization, mammography, and influenza immunization) were offered to less than half of the eligible patients. Overall, only 58% of indicated procedures considered important were offered or performed.

We have found no studies assessing physicians' perceptions of satisfactory levels of preventive coverage in relation to their self-assessed or measured levels of performance. This issue has important implications for the development of strategies to improve preventive care. If physicians believe they are achieving satisfactory levels of coverage, efforts to improve performance must be directed toward encouraging them to aim higher or toward demonstrating that they are overestimating current coverage. If, on the other hand, physicians think that current levels of coverage are not satisfactory, they might be receptive to strategies to enhance preventive care performance.

Few studies have explored physicians' perceptions of barriers to providing preventive care. Attarian and colleagues¹⁷ have reported that North Carolina family physicians and general practitioners most commonly cite lack of time,

patients' lack of motivation, patients' expectations, and the reimbursement system as barriers to health promotion counseling. McPhee and colleagues¹⁸ assessed perceived barriers to cancer screening among 52 physicians in a university general medical practice. The main reasons physicians offered for not doing recommended screening tests were physicians' objections to the tests, physicians' forgetfulness, lack of time, and patients' dislike or refusal.

In this paper, we present results from a survey of family physicians in which we examined the gap between the level of preventive care physicians thought was satisfactory and the level of coverage they thought they achieved for each of 15 preventive maneuvers, which have been evaluated by the Canadian Task Force on the Periodic Health Examination.¹⁹ We also report on physicians' perceptions of barriers to providing preventive care.

METHODS

Between October 1993 and March 1994, a preventive care survey was conducted among family physicians and general practitioners practising in rural areas and large, medium, and small cities in south-central Ontario. The survey area was limited to communities within 1 hour's drive of McMaster University in order to facilitate the second phase of the study, which involved introducing unannounced standardized patients into the practices of consenting physicians.

Questionnaires were mailed to all physicians with addresses in the study area who were listed in the Canadian Medical Association's Physician Resource Databank as family physicians or general practitioners and whose recorded graduation from medical school was between 1972 and 1988. The first mailing was sent to 1236 physicians. A reminder postcard was sent 10 days later. Nonrespondents received follow-up mailings 1 month and 2½ months after the initial mailing. Shortly after the survey was begun, we realized the sample included many ineligible physicians. After the second mailing, we used the 1993 *Canadian Medical Directory* to identify and eliminate

24 ineligible doctors. After the final mailing, 337 randomly selected nonrespondents (of a total of 750) were contacted by telephone to check their eligibility and encourage them to return the questionnaire.

The questionnaire solicited information on physician and practice characteristics, attitudes toward preventive care, perceptions of the importance of a range of preventive maneuvers, self-assessed performance of preventive interventions, and barriers to providing preventive care.

The wording of the items addressing issues of preventive care performance and barriers to providing preventive care is presented in *Table 1*.

Two preventive maneuvers on the questionnaire concerned mammography for women 50 to 59 years of age, one reflecting the recommendation of the Canadian Task Force on the Periodic Health Examination¹⁹ (annual mammography) and the other the recommendation of the Ontario Breast Screening Program²⁰ (mammography at 2-year intervals). The remaining 13 maneuvers were separate interventions. The question regarding perceived barriers to providing preventive care was modified from an item used in a survey of attitudes, knowledge, and practice of disease prevention and health promotion developed by investigators at the Johns Hopkins Health Institution.²¹

The questionnaire was pretested on a convenience sample of family physicians. Fifty physicians included in the survey participated in a study assessing test-retest reliability. For each question type, a random sample of items was selected. For items relevant to this paper, intraclass correlation coefficients ranged from 0.53 to 0.67 for satisfactory performance,

0.56 to 0.74 for self-assessed performance, and 0.44 to 0.51 for barriers to effective preventive care performance.

Data were entered into an SPSS-PC (Statistical Package for the Social Sciences) database and audited for accuracy. We used descriptive statistics and log linear analysis to compare respondents and nonrespondents as to sex, certification status, and decade of graduation, based on information about nonrespondents from the *Canadian Medical Directory*.

RESULTS

Of the 1236 physicians surveyed, 272 were found to be ineligible: 180 because they were not family physicians or general practitioners; 34 because their year of graduation was before 1972 or after 1988; and the rest because they moved and could not be located, were not practising in Ontario, were on maternity leave, were not in practice, were out of town for an extended period, or had participated in the pretest. Usable responses were obtained from 480 (50%) of the 964 eligible physicians, of whom 41% were women, 71% were in group practice, 63% were certificants of the College, and 87% were in fee-for-service practice. Respondents were substantially more likely than nonrespondents to be certificants of the College (63.3% vs 43.7%; $P < 0.0001$), but both groups were similar in sex distribution and decade of graduation.

Respondents' ratings of the importance of maneuvers and their perceptions of satisfactory and self-assessed levels of performance are presented in *Table 2*. In general, the level of coverage respondents considered satisfactory reflected

Table 1. Questions on preventive care coverage and barriers to providing preventive care

What would you consider to be a **satisfactory** level of performance (in terms of the proportion of eligible patients covered) for the following preventive maneuvers?

Percentage of patients covered						
0	10	25	50	75	90	100

Considering the "real-world" limitations of your **actual practice**, for what proportion of your eligible patients do you think you are ordering or performing the following preventive maneuvers?

Percentage of patients covered						
0	10	25	50	75	90	100

For those cases in which a preventive service is recommended but you do **not succeed** in getting it done, which of the following best describe the **reason(s)**?

Strongly disagree.....Strongly agree				
1	2	3	4	5

RESEARCH

Preventive care and barriers to effective prevention

their perceptions of the importance of the maneuver. With few exceptions, importance ratings and perceived satisfactory levels of coverage were higher for maneuvers with a Class A or B recommendation (good or fair evidence for

inclusion) from the Canadian Task Force on the Periodic Health Examination than for those with a Class C (poor evidence for inclusion) or Class D (fair evidence for exclusion). The most striking exception was annual digital rectal

Table 2. Perceptions of satisfactory versus self-assessed performance of preventive interventions

MANEUVER	LEVEL OF COVERAGE	% OF PATIENTS COVERED					IMPORTANCE*			RECOMMENDATION OF CTFPH [†]	
		<10	25	50	75	>90	N	MEAN	SD		N
Pap smears at regular intervals for women who are sexually active	Satisfactory	.4	.4	1.5	17.6	80.0	454	4.8	.43	470	B
	Self-assessed	.4	1.8	13.1	36.9	47.8	452				
Blood pressure measurement at regular intervals for adults	Satisfactory	.7	1.1	4.4	19.7	74.1	451	4.5	.66	470	A
	Self-assessed	.7	3.3	13.1	31.7	51.2	451				
Annual breast examination for women 50 to 59 years	Satisfactory	1.3	.2	4.6	21.0	72.8	452	4.7	.54	470	A
	Self-assessed	1.8	7.1	21.6	41.3	28.2	450				
Smoking cessation counseling	Satisfactory	.9	2.2	9.1	16.8	71.0	452	4.7	.55	469	A
	Self-assessed	3.1	9.5	20.2	27.9	39.5	451				
Annual influenza immunization for patients older than 65 years	Satisfactory	.2	.4	6.4	23.7	69.2	451	4.5	.70	470	A
	Self-assessed	.2	2.9	13.4	40.4	43.1	448				
Annual digital rectal examination for men older than 50 years	Satisfactory	2.9	1.6	6.7	25.3	63.6	451	4.4	.77	469	C
	Self-assessed	5.3	12.9	26.9	31.4	23.4	449				
Mammography every 2 years for women 50 to 59 years	Satisfactory	2.3	2.8	8.3	26.6	60.0	433	4.3	.82	443	N/A
	Self-assessed	3.9	10.3	29.4	33.0	23.4	436				
Tetanus booster immunization every 10 years	Satisfactory	3.6	4.0	14.3	21.6	56.6	449	4.1	.94	468	A
	Self-assessed	12.7	17.1	25.6	26.1	18.5	449				
Testicular examination at regular intervals	Satisfactory	9.2	6.3	20.5	24.1	40.0	448	3.7	1.0	469	C
	Self-assessed	21.6	24.3	23.2	19.6	11.4	449				
Annual mammography for women 50 to 59 years	Satisfactory	35.5	10.6	18.0	14.7	21.3	423	3.1	1.3	450	A
	Self-assessed	41.9	16.6	20.6	12.6	8.3	422				
Measurement of prostate-specific antigen at regular intervals in middle-aged and elderly men	Satisfactory	31.8	13.4	19.3	17.5	18.0	440	2.9	1.2	466	D
	Self-assessed	50.4	16.1	17.3	10.1	6.1	446				
Pneumococcal vaccination for community-dwelling patients older than 65 years	Satisfactory	40.0	16.2	21.5	8.5	13.7	437	2.6	1.2	465	C
	Self-assessed	79.4	8.1	7.6	2.9	2.0	446				
Testing stools for occult blood at regular intervals for middle-aged and elderly adults	Satisfactory	41.0	12.9	17.0	15.4	13.6	441	2.8	1.3	469	C
	Self-assessed	60.1	12.1	14.8	8.5	4.5	446				
Thyroid-stimulating hormone measurement at regular intervals	Satisfactory	43.9	14.3	17.6	13.3	10.9	442	2.5	1.2	470	C and D [‡]
	Self-assessed	48.0	15.0	17.4	12.9	6.7	448				
Chest x-ray examination at regular intervals	Satisfactory	65.3	12.6	12.3	5.7	4.1	438	1.7	1.0	467	D
	Self-assessed	67.3	14.9	10.6	5.6	1.6	443				

*1 – not important, 5 – very important.

[†]Canadian Task Force on the Periodic Health Examination. Assessment of evidence supporting the recommendation that the condition be specifically considered in a periodic health examination: A – good evidence; B – fair evidence; C – poor evidence, but recommendations may be made on other grounds; D – fair evidence for exclusion from consideration in a periodic health examination.

[‡]C for general population, D for postmenopausal women.

examination (DRE) for men older than 50, which, despite only a Class C recommendation, received a mean importance rating of 4.4 on a five-point scale. Almost two thirds of respondents considered satisfactory coverage for DRE to be 90% or more of men older than 50.

For every maneuver, fewer physicians believed they were providing the intervention to at least 90% of their patients than saw this level of coverage as satisfactory. For 10 of the 15 preventive maneuvers, twice as many physicians thought 90% or higher coverage was satisfactory than thought they provided that level of coverage. The gap in the proportion of physicians reporting satisfactory versus self-assessed coverage of 90% or more exceeded 30% for six maneuvers (annual breast examination for women 50 to 59 years, mammography every 2 years for women 50 to 59 years, annual DRE for men over 50 years, Pap smears at regular intervals for sexually active women, tetanus booster immunization every 10 years, and smoking cessation counseling). The gap was evident both for interventions supported by strong evidence and for those that are not.

Table 3 presents the proportion of respondents who thought their delivery of preventive maneuvers was less than satisfactory. For 11 of the 15 maneuvers, most respondents reported coverage lower than the level they thought satisfactory. For six interventions (tetanus booster immunization, DRE, annual breast examination, pneumococcal vaccination for community-dwelling elderly, mammography at 2-year intervals, and testicular examination), more than two thirds reported less than satisfactory coverage.

Respondents' perceived reasons for lack of success in providing recommended preventive care are presented in Table 4. Reasons were patient-related, physician-related, patient- and physician-related, and systems-related. More than two thirds agreed or strongly agreed with the following statements: patient is healthy and does not visit; patient refuses, not interested, or does not comply; no effective systems to remind patients to come in for preventive services; and priority given to presenting problem. More than

one third endorsed the following statements: no effective systems to remind physicians to provide preventive services, intervention not clearly effective, not enough time during patient visits, intervention causes patient discomfort or

Table 3. Proportion of physicians who thought their delivery of preventive maneuvers was less than satisfactory

MANEUVER	PERCEIVED PERFORMANCE LESS THAN SATISFACTORY (%)
Tetanus booster immunization every 10 years (n = 428)	75.5
Annual digital rectal examination for men older than 50 years (n = 429)	71.3
Annual breast examination for women 50 to 59 years (n = 431)	71.0
Pneumococcal vaccination for community-dwelling patients older than 65 years (n = 416)	69.0
Mammography every 2 years for women 50 to 59 years (n = 408)	68.4
Testicular examination at regular intervals (n = 426)	68.1
Smoking cessation counseling (n = 432)	63.0
Pap smears at regular intervals for women who are sexually active (n = 434)	61.8
Measurement of prostate-specific antigen at regular intervals in middle-aged and elderly men (n = 421)	58.2
Testing stools for occult blood at regular intervals for middle-aged and elderly adults (n = 421)	52.3
Blood pressure measurement at regular intervals for adults (n = 431)	51.7
Annual influenza immunization for patients older than 65 years (n = 428)	48.6
Annual mammography for women 50 to 59 years (n = 394)	48.2
Thyroid-stimulating hormone measurement at regular intervals (n = 422)	34.8
Chest x-ray examination at regular intervals (n = 415)	22.9

RESEARCH

Preventive care and barriers to effective prevention

inconvenience. Less than one third agreed with the following: intervention is too expensive, intervention is not reimbursed, do not remember to offer the service, and preventive care guidelines too complex to apply.

Table 4. Reasons for not providing recommended preventive care

REASONS	% OF RESPONDENTS	
	AGREE	STRONGLY AGREE
PATIENT-RELATED		
Patient is healthy and does not visit (n = 453)	44.8	39.1
Patient refuses, is not interested, or does not comply (n = 455)	46.2	23.7
PHYSICIAN-RELATED		
Do not remember to offer the service (n = 450)	21.6	3.6
Preventive care guidelines too complex to apply (n = 438)	16.0	2.5
PATIENT- AND PHYSICIAN-RELATED		
Priority given to presenting problem (n = 447)	53.2	20.8
SYSTEMS-RELATED		
Lack of effective systems to remind patients to come in for preventive services (n = 452)	43.4	23.7
Lack of effective systems to remind physicians to provide preventive services (n = 452)	32.6	12.5
Not enough time during patient visit (n = 449)	27.8	9.4
INTERVENTION-RELATED		
Intervention is not clearly effective (n = 448)	37.9	10.5
Intervention causes patient discomfort or inconvenience (n = 449)	33.9	6.7
Intervention is too expensive (n = 450)	25.8	4.7
Intervention is not reimbursed (n = 447)	10.4	4.7

DISCUSSION

Our results indicate a substantial difference between the level of preventive care physicians want to provide and the level they perceive they do provide. This gap could provide motivation for change, creating a receptive climate for strategies to enhance preventive care performance.

Physicians' perceptions of barriers to providing preventive care could affect the strategies considered. Many respondents appeared to relate difficulties in providing preventive care to the tendency to view medical care as illness care; more than three quarters saw the failure of healthy patients to visit regularly and priority given to presenting problems as reasons for their failure to provide care. Another widespread perception was that patients' lack of interest in or refusal of preventive care is a serious problem. Many respondents saw a need for effective systems to remind patients and physicians about preventive services. Almost half saw uncertainty about the effectiveness of preventive interventions as an issue, and a few saw the complexity of preventive care guidelines as a problem. Among the least endorsed reasons was inadequate reimbursement. (Although few respondents perceived inadequate reimbursement as a barrier to providing preventive services, more than 80% agreed elsewhere in the questionnaire that time spent on preventive care is inadequately reimbursed.)

Given these findings, many of our respondents might support changes in practice organization, clinical records, and information systems to give greater prominence to preventive and anticipatory care; initiatives to inform the public about preventive care; and development and implementation of effective reminder systems. Our findings provide less support for fee schedule manipulation.

Our findings are consistent with those of Dietrich and Goldberg that importance rating corresponds to performance for most but not all preventive maneuvers¹⁶; with the findings of Attarian and colleagues that physicians most commonly cite lack of time, patients' lack of motivation, and patients' expectations as barriers to

performing health promotion counseling¹⁷; and with the findings of McPhee and colleagues that lack of time and patient dislike or refusal were serious barriers to cancer screening.¹⁸ Our findings diverge in the importance of reimbursement, which was the fourth most commonly cited barrier in the North Carolina study, and physician objection to the tests and physician forgetfulness, which were identified as important barriers in the study by McPhee and colleagues.

We acknowledge several limitations of this study. Using the Canadian Medical Association's Physician Resource Databank as the sampling frame for this study was somewhat unsatisfactory. We anticipated that some specialist physicians, but not so many, would be mislabeled as family physicians or general practitioners.

The response rate (50% of eligible physicians) was lower than expected, despite aggressive follow-up of nonrespondents. The relatively low response rate warrants caution in generalizing our study results to the entire physician population of the study area. We suspect that respondents are more likely to be prevention oriented than nonrespondents. If this were true, our results might overestimate importance ratings and satisfactory and self-assessed levels of coverage.

Certificants of the College were overrepresented among respondents. However, none of the three Canadian studies that have examined the relationship between residency training and preventive care performance has shown better performance by residency-trained physicians after controlling for confounding variables, such as age and practice location.^{1,6,22}

Data in this study were obtained by physician self-report and should, therefore, be viewed with caution. Studies comparing self-report with objective measures of performance of preventive care suggest that physicians tend to overestimate their performance.²³⁻²⁵ The gap between the level of performance physicians consider satisfactory and their actual performance might, therefore, be understated in our study. In a second phase of the study, we introduced unannounced standardized patients into the practices of randomly selected

consenting physicians in order to assess actual performance of preventive care maneuvers.

CONCLUSION

Many physicians in south-central Ontario provide preventive care to their patients at lower levels than they consider satisfactory. Their perception of a gap between self-assessed coverage and the level of coverage they regard as satisfactory could create fertile ground for initiatives to improve performance. They identify barriers to the successful provision of recommended preventive services that point to possible strategies for improving preventive care delivery. ■

Acknowledgment

Dr Hutchison is supported as a National Health Research Scholar by Health Canada. Ms Abelson is supported by a Health Research Personnel Development Program Fellowship from the Ontario Ministry of Health.

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References

1. Borgiel A, Williams JL, Bass MJ, Dunn EV, Evensen MK, Lamont CT, et al. Quality of care in family practice: does residency training make a difference? *Can Med Assoc J* 1989;140:1035-43.
2. Lurie N, Manning WG, Peterson C, Goldberg GA, Phelps CA, Lillard L. Preventive care: do we practice what we preach? *Am J Public Health* 1987;77:801-4.
3. Lewis CE. Disease prevention and health promotion practices of primary care physicians in the United States. *Am J Prev Med* 1988;4(Suppl 4):9-16.
4. Battista RN. Adult cancer prevention in primary care: patterns of practice in Quebec. *Am J Public Health* 1983;73:1036-9.
5. Battista RN, Palmer CS, Marchand BM, Spitzer WO. Patterns of preventive practice in New Brunswick. *Can Med Assoc J* 1985;132:1013-5.
6. Smith HE, Herbert CP. Preventive practice among primary care physicians in British Columbia: relation to recommendations of the Canadian Task Force on the Periodic Health Examination. *Can Med Assoc J* 1993;149:1795-800.



RESEARCH

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7. Rosser WW, McDowell I, Newell C. Use of reminders for preventive procedures in family medicine. *Can Med Assoc J* 1991; 145:807-14.
8. Shank JC, Powell T, Llewelyn J. A five-year demonstration project associated with improvement in physician health maintenance behaviour. *Fam Med* 1989;21:273-8.
9. Cheney C, Ramsdell JW. Effect of medical records' checklists on implementation of periodic health measures. *Am J Med* 1987;83:129-36.
10. McDonald CJ, Hui SL, Smith DM, Tierney WM, Cohen SJ, Weinberger M, et al. Reminders to physicians from an introspective computer medical record: a two-year randomized trial. *Ann Intern Med* 1984;100:130-8.
11. Tierney WM, Hui SL, McDonald CJ. Delayed feedback of physician performance versus immediate reminders to perform preventive care: effects on physician compliance. *Med Care* 1986; 24:659-66.
12. Korn JE, Schlossberg LA, Rich EC. Improved preventive care following an intervention during an ambulatory care rotation: carryover to a second setting. *J Gen Intern Med* 1988;3:156-60.
13. Cohen DI, Littenberg B, Wetzel C, Neuhauser DvB. Improving physician compliance with preventive guidelines. *Med Care* 1982;20:1040-5.
14. Schreiner DT, Petrusa ER, Rettie CS, Kluge RM. Improving compliance with preventive medicine procedures in a house staff training program. *South Med J* 1988; 81:1553-7.
15. Ornstein SM, Garr DR, Jenkins RG, Rust PF, Arnon A. Computer-generated physician and patient reminders: tools to improve population adherence to selected preventive services. *J Fam Pract* 1991; 32:82-90.
16. Dietrich AJ, Goldberg H. Preventive content of adult primary care: do generalists and subspecialists differ? *Am J Public Health* 1984;74:223-7.
17. Attarian L, Fleming M, Barron P, Strecher V. A comparison of health promotion practices of general practitioners and residency trained physicians. *J Community Health* 1987;12:31-9.
18. McPhee SJ, Richard R, Bird J, Solkowitz S, Jenkins C. Reasons physicians do not perform cancer screening. *Clin Res* 1985;33:727A.
19. The Canadian Task Force on the Periodic Health Examination. *The Canadian guide to clinical preventive health care*. Ottawa, Ont: Health Canada, 1994.
20. Ontario Cancer Treatment and Research Foundation. *Proposal for a province-wide program of breast cancer screening*. Toronto, Ont: Ontario Cancer Treatment and Research Foundation, 1989.
21. Johnson KC, Ford DE, Smith GS. The current practices of internists in prevention of residential fire injury. *Am J Prev Med* 1993;9:39-44.
22. Maheux B, Beaudoin C, Jacques A, Lambert J, Lévesque A. Effects of residency training in family medicine v. internship training on professional attitudes and practice patterns. *Can Med Assoc J* 1992; 146:901-7.
23. Woo B, Woo B, Cook EF, Weisberg M, Goldman L. Screening procedures in the asymptomatic adult: comparison of physicians' recommendations, patient desires, published guidelines and actual practice. *JAMA* 1985;254:1480-4.
24. McPhee SJ, Richard RJ, Solkowitz SN. Performance of cancer screening in a university general internal medicine practice: comparison with American Cancer Society guidelines. *J Gen Intern Med* 1986; 1:275-81.
25. McPhee SJ, Bird JA, Jenkins NH, Fordham D. Promoting cancer screening: a randomized, controlled trial of three interventions. *Arch Intern Med* 1989; 149:1866-72.

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