Missed opportunities for prevention in general internal medicine

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Abstract

Background: According to the Canadian Society of Internal Medicine, the Canadian general internist is in the ideal position to promote patient health through disease prevention. To explore the general internist's contribution to disease prevention, the authors quantified the extent to which opportunities for prevention were addressed by the general internal medicine (GIM) service in an acute care teaching hospital in Calgary.

Methods: The authors interviewed 100 adult patients before discharge from the hospital's GIM service between May 14, 1997, and Dec. 2, 1997. The number of potential opportunities for preventive intervention were identified for each patient from 10 possible interventions recommended by the Canadian Task Force on the Periodic Health Examination (now the Canadian Task Force on Preventive Health Care): breast cancer screening, Papanicolaou smear for cervical cancer, counselling on menopausal hormone replacement therapy, digital rectal examination for prostate cancer, smoking cessation counselling, cholesterol measurement, therapy or monitoring for hypertension, influenza vaccination, pneumococcal vaccination and colorectal cancer screening. The authors determined which interventions the patient had undergone before the current admission to hospital and, using patient recall and postdischarge medical chart review, which opportunities for intervention were addressed by the GIM service during the current admission. An opportunity for preventive intervention was considered as addressed by the GIM service if it was performed during the current admission or if the general internist informed the patient or the patient's family physician of the need for such intervention in the near future.

Results: Among the 10 preventive interventions considered, a mean of 3.8 potential opportunities for prevention were identified for each patient. Of these, 46.5% had been addressed before the current admission, and 8.7% were addressed by the GIM service during the admission. Therefore, at the time of discharge, a mean of 55.2% of opportunities had been addressed. Among the opportunities not previously addressed, the GIM service most frequently addressed digital rectal examination for prostate cancer and cholesterol measurement.

Interpretation: General internists are discharging patients without sufficiently addressing opportunities for disease prevention. Preventive care protocols may be needed to limit the frequency of missed opportunities for prevention in patients admitted to tertiary care GIM services.

The Canadian general internist is described as a specialist trained in the diagnosis and nonsurgical treatment of diseases in adults involving one or more organ systems.[1–4] The Canadian Society of Internal Medicine affirms that, in caring for acutely ill inpatients with complex medical problems, general internists are in the unique and opportune position to promote patient health through disease prevention "since they frequently encounter patients at crucial moments, when responsiveness to preventive intervention is likely to be high."[1] To explore whether general internists are contributing to disease prevention in such patients, we quantified the extent to which opportunities for prevention are addressed by the general internal medicine (GIM) service at an acute care teaching hospital.

Evidence

Études

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This article has been peer reviewed.

CMAJ 1999;160:1137-40

See related article page 1171

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Methods

Our study was carried out at Foothills Medical Centre, a 741-bed tertiary care facility in Calgary. The GIM service at the hospital consists of 2 medical teaching units, each caring for 15 to 25 patients at any given time. From May 14, 1997, to Dec. 2, 1997, we interviewed randomly selected adult patients before discharge from the service on random days of the week and at random times of the day. The criteria for inclusion in our study were availability and willingness to participate, ability to answer simple questions and, in the case of non-English-speaking patients, availability of a capable interpreter. A total of 104 patients were approached, of whom 4 did not meet our inclusion criteria: 1 patient refused to participate, 1 patient was unable to answer simple questions owing to cognitive impairment, and 2 patients did not speak English and did not have an interpreter. We thus interviewed 100 patients.

Our questionnaire contained 3 sections. Section 1 determined the number of potential opportunities for preventive intervention present for each patient. We evaluated 10 preventive interventions that fall within the clinical scope of general internal medicine and that relate directly or indirectly to diseases commonly encountered by general internists (Appendix 1). The criteria that we used to identify opportunities for preventive intervention (Appendix 1) were based predominantly on the evidence-based recommendations of the Canadian Task Force on the Periodic Health Examination (now the Canadian Task Force on Preventive Health Care).[5] However, for certain preventive interventions for which controversy still exists, such as screening for colorectal cancer in people at high risk, we also incorporated some of the recommendations of the American College of Physicians.[6] Section 1 identified each patient's risk factors — and, thus, opportunities for prevention — by obtaining information regarding age, sex, pertinent past medical history and family history.

Section 2 determined which of the 10 preventive interventions considered in this study the patient had undergone before the current admission to hospital. Patients in whom a particular intervention was indicated (as per section 1) were asked to recall whether they had undergone this intervention within the recommended time frame before admission to hospital.

Section 3 determined which of the 10 opportunities for preventive intervention were addressed by the GIM service during the current admission. An opportunity for intervention was considered as addressed by the GIM service if the intervention was performed during the patient's current admission, if there was discussion between the general internist and the patient regarding the need for this intervention in the near future, or if there was written communication between the general internist and the patient's family physician regarding the need for this intervention in the near future. Recognizing the potential for patients to be unaware of preventive interventions performed while in hospital, we supplemented patient reporting with a focused medical record review for all study patients. We carefully examined the discharge summary and physicians' orders sections for evidence of preventive interventions ordered by the GIM service or suggested by the GIM service to the patient directly or to the patient's family physician.

For each patient we calculated the proportion of all opportunities for prevention that had been addressed before the current admission, the proportion of all opportunities that were addressed by the GIM service and, cumulatively, the proportion of all opportunities that were addressed at the time of discharge from the GIM service. We then evaluated the mean across all patients for each of these proportions and calculated 95% confidence intervals (CIs) based on the exact binomial distribution. We calculated other CIs for mean absolute numbers of opportunities using the assumptions of the normal distribution. These analyses were performed for all patients in aggregate and were repeated for each specific preventive intervention.

The study was reviewed and approved by the University of Calgary's Conjoint Medical Research Ethics Board.

Results

For the 10 prevention interventions that we considered, the mean number of potential opportunities identified per patient was 3.8 (95% CI 3.5–4.2) (range 0–7). Of these, a mean of 1.8 (95% CI 1.5–2.0) opportunities had been addressed before the current admission to the GIM service. Of the remaining 2.0 opportunities, a mean of 0.3 (95% CI 0.2–0.4) opportunities were addressed by the GIM service during the current admission. The corresponding proportions were as follows: an average of 46.5% (95% CI 40.9%–51.1%) of the total opportunities for prevention identified for each patient had been addressed before the current admission, whereas an average of 8.7% (95% CI 5.8%–11.6%) of each patient's total opportunities were addressed during the current admission. Therefore, at the time of discharge, a mean of 55.2% (95% CI 49.2%–59.4%) of each patient's opportunities for prevention were addressed.

The results for each intervention are given in Table 1. The interventions most likely to remain unaddressed at the time of discharge were pneumococcal vaccination (85.1% of opportunities remaining unaddressed) and counselling on menopausal hormone replacement therapy (76.0% of opportunities remaining unaddressed).

Fig. 1 shows, for each preventive intervention, the percentage of total opportunities addressed before the patient's current admission and by the GIM service. Only the opportunities addressed exclusively by the GIM service (i.e., those that had not been addressed before the current admission) were considered as part of the GIM service's contribution. The opportunities for prevention most likely to have been addressed before the current admission included therapy or monitoring for hypertension and smoking cessation counselling. Among the opportunities not previously addressed, the GIM service most frequently addressed digital rectal examination for prostate cancer and cholesterol measurement.

Interpretation

In our study, patients admitted to the GIM service had numerous opportunities for prevention, many of which had not been addressed before their current hospital admission. Although the GIM service addressed some of these opportunities, general internists missed many opportunities for prevention and thus did not capitalize on patients' likely heightened receptiveness to prevention.[1] Our findings therefore suggest that general internists may need to increase their attention to preventive care in order to im-

prove health promotion. A study of internists in the United States similarly showed suboptimal preventive care practices.[7] Our study is the first to report the preventive care practices of Canadian general internists.

Many of the preventive interventions that we evaluated are not ideally performed in the inpatient setting. Rather, we support the development of a "preventive partnership" among the family physician, the patient and the general internist, wherein each member assumes an important role in disease prevention. Improved communication may increase the collective contribution of this partnership.

The focus of the GIM service in a tertiary care facility is acute illness. Accordingly, general internists are frequently burdened by a considerable workload as well as increasing pressure to minimize the length of patients' stays. These factors may result in a tendency to overlook the need to address disease prevention. Perhaps the development of a preventive care predischarge checklist could serve as a reminder for general internists to consider prevention once acute medical issues have been resolved. Alternatively, computerized medical record databases can be used to produce up-to-date patient-specific preventive care recommendations.[8–10] If widely accessible, such databases would undoubtedly facilitate communication between general internists and family physicians and thus promote routine performance of preventive interventions. In addition, greater emphasis on preventive medicine in Canadian internal medicine training programs may be needed to limit the frequency of missed opportunities for prevention among general internists.

Controversy concerning indications for certain preventive interventions may account in part for some missed opportunities for prevention found in our study. For example, the American College of Physicians recommends routine screening for colorectal cancer in patients with inflammatory bowel disease or a family history of colorectal cancer,[6] whereas the Canadian Task Force on the Periodic Health Examination does not support screening these high-risk groups.[5] In view of such discrepancy, and the anecdotal practice patterns at our institution, we considered personal history of inflammatory bowel disease or family history of colorectal cancer as indications for preventive intervention. Such controversies suggest that at least a modest portion of the opportunities "missed" by general internists may actually stem from differing personal interpretations of the evidence supporting preventive care guidelines.

Our study may have failed to capture some opportunities that were addressed by the GIM service because of lack

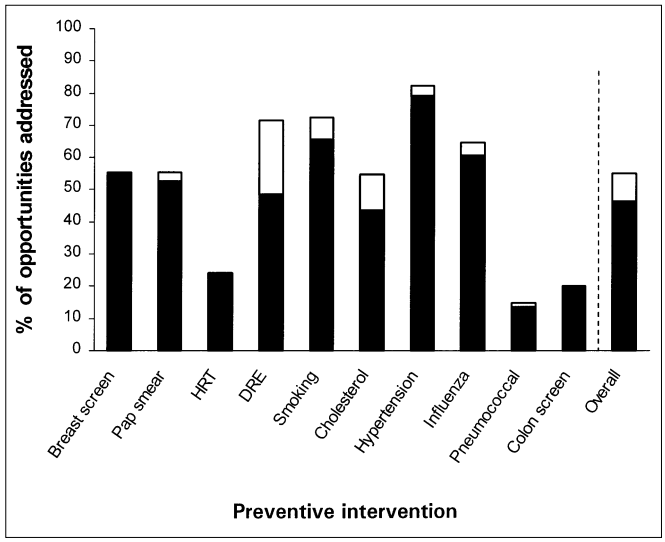

Fig. 1: Percentage of opportunities for preventive intervention addressed before current hospital admission (black bars) and by general internal medicine service during current admission (white bars). HRT = hormone replacement therapy, DRE = digital rectal examination. See Appendix 1 for a description of the preventive interventions.

Table 1: Numbers of opportunities for preventive intervention identified and addressed in 100 patients admitted to a tertiary care general internal medicine (GIM) service, by type of intervention*

Intervention	No. of patients where indicated	No. of patients where previously addressed	No. of patients where addressed by GIM service	No. of patients where remained unaddressed
Breast cancer screening	9	5	1	4
Papanicolaou smear for cervical cancer	36	19	1	16
Counselling on menopausal hormone replacement therapy	25	6	0	19
Digital rectal examination for prostate cancer	35	17	17	10
Smoking cessation counselling	29	19	7	8
Cholesterol measurement	62	27	15	28
Therapy or follow-up monitoring for hypertension	34	27	16	6
Influenza vaccination	74	45	6	26
Pneumococcal vaccination	74	10	2	63
Colorectal cancer screening	5	1	0	4

*Indications for the interventions are described in Appendix 1. For any one intervention, the sum of columns 3, 4 and 5 may exceed the number in column 2, because some patients received certain interventions more than once (perhaps unnecessarily).

of patient recall, undocumented telephone conversations between the general internist and family physician, or preventive interventions addressed by the GIM service after discharge (e.g., during outpatient follow-up visits). We attempted to limit the frequency of such occurrences by using a 2-pronged approach to data collection, relying both on patient recall and on documentation in the patient's medical chart. We also recognize that some patients admitted to GIM services may carry such a limited prognosis that prevention is essentially a nonissue. Nevertheless, even the oldest or most chronically ill patients stand to benefit from certain preventive interventions (e.g., influenza and pneumococcal vaccination). Finally, although we did not contact the patients' family physicians for confirmation of interventions performed before admission to hospital, the contribution to prevention made by the GIM service would remain the same.

In conclusion, we found that general internists are discharging patients without contributing substantially to preventive care, a finding that indicates missed opportunities for prevention. In the interests of health promotion and disease prevention, we propose the formation of a preventive partnership among the family physician, the patient and the general internist wherein the burden of prevention is shared by all members. The implementation of reminder prompts for preventive care — perhaps computer-based — may also limit the frequency of missed opportunities for prevention in patients admitted to tertiary care GIM services.

We thank Drs. Guido M.A. Van Rosendaal and Jeffrey P. Schaefer for their helpful comments on earlier versions of this manuscript.

Dr. Ghali is supported by a Population Health Investigator Award from the Alberta Heritage Foundation for Medical Research.

Competing interests: None declared.

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Appendix 1: Criteria used to identify opportunities for preventive intervention based on the recommendations of the Canadian Task Force on the Periodic Health Examination[5] and the American College of Physicians[6]

Intervention	Indications used for this study
Breast cancer screening	Annual screening (mammography and breast examination by clinician) for women aged 50–69 years
Papanicolaou smear for cervical cancer	Screen sexually active women at least every 3 years*
Menopausal hormone replacement therapy	Counsel peri- and postmenopausal women regarding the benefits and risks of this therapy
Digital rectal examination for prostate cancer	Annual examination for men over 50 years of age†
Smoking cessation counselling	Advise smokers to quit smoking or refer them to validated smoking cessation counselling programs
Cholesterol measurement	Case-finding in patients over 30 years of age who present with documented heart disease or risk factors, such as smoking, hypertension, diabetes mellitus, familial premature heart disease or hypercholesterolemia
Therapy or follow-up monitoring for hypertension	Therapy or monitoring for people over 21 years of age with diastolic blood pressure of 90 mm Hg or higher
Influenza vaccination	Annual vaccination of selected high-risk populations (people over 65 years of age, patients in institutions and patients with chronic illness, such as diabetes, heart disease, lung disease or renal failure)
Pneumococcal vaccination	Vaccination every 6 years of selected high-risk populations (as per influenza vaccination), patients with sickle cell disease and those who have undergone splenectomy
Colorectal cancer screening	Sigmoidoscopy or colonoscopy every 3 years in people over 40 years of age with a history of inflammatory bowel disease, familial polyposis coli or a family history of colorectal cancer in a first-degree relative

*The exact frequency is debated.
†The Canadian Task Force on the Periodic Health Examination (now the Canadian Task Force on Preventive Health Care) recommends that physicians currently performing this intervention continue to do so. However, the task force acknowledges that evidence in support of the intervention is weak.

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