

Preventive care for the elderly

Do family physicians comply with recommendations of the Canadian Task Force on Preventive Health Care?

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abstract

OBJECTIVE To assess to what extent family physicians perform the maneuvers for elderly patients recommended by the Canadian Task Force on Preventive Health Care (CTF), and to compare physicians' performance among patients who had structured periodic health examinations with performance among those who did not.

DESIGN Retrospective chart audit.

SETTING Family practice unit in a secondary care, university-affiliated hospital in Toronto, Ont.

PARTICIPANTS Records of 136 community-dwelling patients aged 70 and older. Of 340 randomly selected charts, 108 were excluded and 51 were inaccessible; 100 had had PHEs and attended the clinic three or more times. A random sample of 36 was chosen from the remaining 81.

MAIN OUTCOME MEASURES Proportion of patients who received the recommended screening maneuvers.

RESULTS Charts were audited for 100 patients who had structured periodic health examinations and 36 who did not but who attended the clinic three or more times during an 18-month period. Screening rates among patients who had structured examinations ranged from 28% of patients screened for hearing impairment to 100% screened for hypertension. Patients who did not have structured examinations were significantly less likely to receive screening maneuvers.

CONCLUSIONS Screening rates were below desirable levels in patients older than 70 years. Screening during structured health examinations seems to be more effective than opportunistic screening for patients 70 and older.

résumé

OBJECTIF Évaluer dans quelle mesure les médecins de famille exécutent les interventions recommandées par le Groupe de travail canadien sur l'examen médical périodique chez leurs patients âgés et comparer le rendement des médecins dont les patients ont subi un examen médical périodique structuré avec celui des médecins qui n'y ont pas procédé.

CONCEPTION Une vérification rétrospective des dossiers.

CONTEXTE Une unité de pratique familiale dans un hôpital de soins secondaires, affilié à une université à Toronto en Ontario.

PARTICIPANTS Les dossiers de 136 patients habitant dans la collectivité âgés de 70 ans et plus. Des 340 dossiers choisis au hasard, 108 ont été exclus et 51 étaient inaccessibles; 100 ont subi un examen structuré et ont fréquenté la clinique trois fois ou plus. Les dossiers de 36 patients ont été choisis au hasard parmi les 81 autres.

PRINCIPALES MESURES DES RÉSULTATS La proportion des patients chez qui on a procédé aux interventions de dépistage recommandées.

RÉSULTATS On a procédé à la vérification des dossiers de 100 patients qui avaient subi un examen médical périodique structuré et de 36 qui ne l'avaient pas subi mais qui s'étaient présentés à la clinique trois fois ou plus pendant une période de 18 mois. Les taux de dépistage chez les patients qui avaient eu des examens médicaux structurés variaient de 28% des patients pour des déficiences auditives à 100% pour l'hypertension. Les patients qui n'avaient pas subi d'examen structuré étaient considérablement moins susceptibles d'avoir fait l'objet d'interventions de dépistage.

CONCLUSIONS Les taux de dépistage étaient en deçà des niveaux acceptables chez les patients de plus de 70 ans. Les interventions de dépistage durant un examen médical structuré semblaient plus efficaces que le dépistage opportuniste chez les patients de 70 ans et plus.

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For seniors, there are a limited number of primary and secondary preventive maneuvers for which there is good evidence that implementation does more good than harm. The Canadian Task Force on Preventive Health Care (CTF) has determined through a rigorous evidence-based approach activities with good (grade A) and fair (grade B) evidence for inclusion in periodic health examinations (PHE) for people of various ages.¹ Although provision of some preventive care activities has been examined in adults,^{2,13} how much the guidelines are implemented among the elderly is unknown.

In most of urban Canada, older people have at least one contact with a family physician each year, and the average number of visits is between four and six yearly.¹⁴⁻¹⁶ The 1979 recommendation of the Canadian Task Force on the Periodic Health Examination was to abandon annual checkups in favour of administering a series of age- and sex-specific health protection packages opportunistically, when patients visited primary care physicians for any reason rather than for a specific preventive purpose.¹⁷ Despite this recommendation, most physicians perform preventive maneuvers within the context of general physical examinations, herein referred to as periodic health examinations (PHEs).^{9,18-21}

Nine guidelines reviewed by the CTF are recommended for people older than 70¹ (**Table 1**): screening for smoking, problem drinking, activity level, hearing impairment, diminished visual acuity, and hypertension; providing general nutritional advice; and referring patients for multidisciplinary

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Table 1. Recommendations of the Canadian Task Force on Preventive Health Care in the Elderly

CONDITION	MANEUVER	QUALITY OF EVIDENCE
Tobacco-caused disease	Obtain history of tobacco use	A
Tetanus	Tetanus immunization	A
Falls injuries	Multidisciplinary postfall assessment	A
Problem drinking	Obtain history of alcohol use	B
All-cause mortality and morbidity	Counseling on moderate physical activity	B
Hearing impairment	Inquiry, whispered voice test, or audioscope	B
Diminished visual acuity	Snellen sight card	B
Hypertension	Blood pressure measurement	B
Diet-related illness	Dietary counseling	B
Influenza	Annual immunization	B

A—Good evidence to support recommendation that the condition be specifically considered in a periodic health examination.

B—Fair evidence to support recommendation that the condition be specifically considered in a periodic health examination.

assessment after a fall. In addition, influenza and tetanus vaccinations are recommended. Pneumococcal vaccination was given a C recommendation by the CTF (poor evidence for inclusion or exclusion from a PHE) for immunocompetent community-dwelling seniors.²² Screening for breast cancer and cervical cancer are not included in this list because the CTF concluded there is insufficient evidence for women older than 70 to recommend screening.¹

In this study, we compared the CTF's recommendations for screening with actual performance of screening in an urban family practice teaching unit to determine whether maneuvers with grades A and B recommendations were being implemented. A secondary objective was to determine whether performance differed for patients who had annual PHEs compared with those who came in for regular visits only. Based on previous studies of physician performance, we hypothesized that implementation of the CTF recommendations would be less than optimal

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and that performance would be superior in patients who had structured PHEs where a reminder tool was used. Because this was a retrospective observational study without controls, comparisons between patients who had PHEs and those who did not can serve only to promote discussion and generate hypotheses for further research.

METHODS

Women's College Hospital is a secondary care hospital in Toronto, Ont, and the Family Practice Health Centre is a teaching unit. The hospital is affiliated with the University of Toronto and focuses on women's health care. As of October 31, 1996, 953 patients older than 70 were registered with the unit at Women's College Hospital; 81% of these patients were women. Patients of 31 staff physicians and six family practice residents were included in the audit.

A list of patients born before January 1, 1926, was randomly generated. Patients were included in the study if they had had a PHE or had attended the clinic three or more times between May 1, 1995, and October 31, 1996. Three office visits was chosen arbitrarily because we assumed that a physician who chose to deliver preventive care opportunistically could theoretically implement all the CTF maneuvers over the course of three visits. Patients were excluded if they were institutionalized or homebound, if their care had been designated "palliative" by their family physicians, or if their charts were illegible.

For the retrospective chart audit, 100 patients who had had PHEs were chosen as a sample size of convenience at the outset of the study. For secondary analysis, we reviewed the charts of 36 patients who had not had PHEs. Although the chart recorder (A.F.) was not blinded to the purpose of the audit, none of her patients' charts were included in the audit. A PHE was recorded as completed if the physician had completed the form designated for use during PHEs of all adults (not specifically the elderly). The form was developed locally and contains more than 30 items, including screening for smoking, alcohol, influenza vaccination, tetanus vaccination, exercise, nutrition, and blood pressure. Screening for hearing, vision, or a history of falls is not included in the form. The form is a reminder tool for screening only, and while there are sections to record management, no suggestions for management are given.

All data recorded in the chart during the study period, including the structured PHE form, progress notes written by physicians and nurses, consultation

notes, prescriptions, and results of diagnostic testing, were reviewed. In addition, cumulative patient profiles were reviewed. Cumulative patient profiles are attached to the inside cover of patients' charts and include ongoing summaries of patients' demographic and social data, medical history, current medical problems, medications, allergies, and a list of specialists seen.

Patients' age, sex, and living situations were recorded; patients' comorbid conditions were recorded and categorized by major organ system or disease. Each patient was given a comorbidity score calculated as the sum of comorbid conditions; the maximum potential comorbidity score was 15. The number of medications used regularly and as needed was recorded for each patient.

For each of the nine categories of preventive health measures, charts were audited for information on screening and presence or absence of the targeted condition. Excessive alcohol intake was defined as drinking that exceeded safe limits (more than three standard drinks daily or 12 weekly for men, more than two daily or nine weekly for women, where one standard drink is 355 mL of beer, 45 mL of spirits, or 150 mL of wine)²³ or if there was a positive response to two or more CAGE questions.²⁴

Any comment in the chart regarding dietary advice (eg, increase fibre, decrease fat) was considered nutritional advice. Hearing was documented as screened if a physician had performed a maneuver, such as a whisper test; used an audioscope; asked a question about hearing difficulty; or referred the patient to an audiologist or otolaryngologist for hearing assessment. Visual acuity was documented as screened if a physician had used a Snellen eye chart or referred the patient to an ophthalmologist. Hypertension was considered screened if blood pressure was recorded at least once. Influenza vaccination was considered screened if the patient had been offered the vaccine during the fall. Tetanus was documented as screened appropriately if vaccination was given or immunization offered within the previous 10 years.

For falls, the CTF gave a grade A recommendation for referring elderly patients for multidisciplinary postfall assessments (where such service is available). Assessment and counseling of patients for risk of falling received a grade C recommendation. Therefore, our audit did not include screening for falls. The charts of patients who had a documented fall during the audit period, however, were audited for specialty referrals.

Categorical data were analyzed using the χ^2 test with a Yates correction. Data were entered and analyzed using Epi Info software. A $P < .05$ level was chosen for significance. Continuous data were analyzed using Student's t test.

RESULTS

We reviewed 340 randomly selected charts. We excluded the charts of 108 patients: 96 had attended the clinic fewer than three times during the study period and had had no PHE; six were living in nursing homes or were homebound; one was in palliative care; four were younger than 70 during the study period; and one chart was illegible. Fifty-one charts were inaccessible: 36 were in storage, three were on microfiche, and 12 could not be located. Charts were audited for 100 patients who had had PHEs and attended the clinic three or more times. A random sample of 36 patients as taken from the remaining 81 charts.

Seven assessments were completed by family medicine residents, the remainder by staff physicians. Nursing notes were included in 107 (79%) charts. The unit's PHE reminder form was used for all but one patient with a PHE, whom we excluded.

Patients' baseline characteristics are shown in **Table 2**. Patients who had not had PHEs were older ($P < .01$), had more comorbidity ($P < .01$), and were taking more medications ($P < .03$). Patients' comorbidity is shown in **Table 3**.

Performance of recommended screening maneuvers during general PHEs is shown in **Table 4**. Most patients were asked about use of tobacco and alcohol; few smokers and problem drinkers were identified (9% and 6%, respectively). General nutritional advice was given to 77% of patients, and 89% were screened for activity level.

All patients had their blood pressure measured at least once. Sixteen percent had elevated readings, and five of these were not known to have had hypertension in the past. Twenty-eight percent were screened for hearing, and 47% were screened for visual impairment. Of 18 patients who presented to the clinic after a fall, two were referred for further assessment.

Although 62% of patients were screened for tetanus vaccination, four who lacked vaccination refused it. Likewise, 70% of patients were screened for influenza vaccination, and four refused it.

As **Table 4** shows, patients who had PHEs were significantly more likely than those who made opportunistic visits to be screened for smoking, alcohol,

Table 2. Characteristics of patients who had periodic health examinations (PHEs) compared with those who attended the clinic for three or more visits (non-PHE)

CHARACTERISTIC	TOTAL (N = 136)	PHE (N = 100)	NON-PHE (N = 36)	P VALUE*
Mean age (y)	78.2	77.4	80.5	.01
Proportion of women	85%	84%	86%	.97
Proportion living alone	50%	49%	53%	.99
Average number of conditions	2.9	2.7	3.8	<.01
Average number of medications	3.3	3.1	4.0	.03

* P for statistical comparison between the two groups of patients.

Table 3. Comorbidity of patient sample

DISEASE	TOTAL (N = 136)	PHE (N = 100)	NON-PHE (N = 36)
Cancer	20	12	8
Cardiovascular	44	26	18
Dementia	3	3	0
Endocrine	43	35	8
Gastrointestinal	29	19	10
Hematologic	13	8	5
Hypertension	53	40	13
Musculoskeletal	53	40	13
Neurologic	18	9	9
Osteoporosis	20	17	3
Peripheral vascular	10	6	4
Psychiatric	12	5	7
Renal	2	1	1
Respiratory	21	12	9
Other	10	6	4

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Table 4. Comparison of performance of screening maneuvers for patients who had periodic health examinations (PHE) and those who did not (non-PHE)

SCREENING MANEUVER	PHE (N = 100) N (%)	NON-PHE (N = 36) N (%)	RISK RATIO* (95% CONFIDENCE INTERVAL)	P VALUE
Smoking	90 (90)	23 (64)	1.41 (1.1-1.8)	<.01
Alcohol	88 (88)	17 (47)	1.86 (1.3-2.7)	<.01
Tetanus	62 (62)	13 (36)	1.72 (1.1-2.7)	.01
Influenza	70 (70)	25 (69)	1.01 (0.8-1.3)	.88
Nutrition	77 (77)	5 (14)	5.54 (2.4-12.6)	<.01
Exercise	89 (89)	6 (17)	5.34 (2.6-11.1)	<.01
Hearing	28 (28)	5 (14)	2.02 (0.8-4.8)	.14
Vision	47 (47)	11 (31)	1.54 (0.9-2.6)	.13
Hypertension	100 (100)	36 (100)	1.00	1.00

*Risk ratio—likelihood of patients having PHEs receiving the maneuver relative to that of patients not having PHEs.

tetanus vaccination, nutrition, and exercise. There were non-significant differences in screening for influenza vaccination, hearing, and vision.

DISCUSSION

This is the first study we are aware of that assesses level of concordance between family physicians' actual screening practices for the elderly and the recommendations of the CTF. The study was conducted at a family practice health centre that uses a reminder form for PHEs. The primary findings of this study are rates of screening maneuvers for patients having PHEs. As a secondary, hypothesis-generating objective, we compared these rates with rates in a small group of patients who did not have PHEs.

Screening patients who had PHEs

Patients who had PHEs had the benefit of both a structured time for an annual health review and a physician who was using a reminder form. Reminder tools, when constructed to improve screening, have been shown in several trials to be successful in improving physician performance.^{8-11,25} Despite use of

a reminder form, only hypertension was screened for in all patients.

The CTF gave a grade A recommendation to only two screening interventions: smoking and tetanus vaccination. Among patients having PHEs, 90% were asked about tobacco use and 62% were asked about tetanus vaccination.

The CTF also gave a grade A recommendation to referring patients who have had falls for multidisciplinary postfall assessments. Our audit showed that, of the 18 patients who had had falls documented during their PHEs, only two were referred for further assessment (one refused the referral, and one was referred to a general internist). The evidence for multidisciplinary postfall assessments was based on two randomized controlled trials of postfall assessments.^{26,27} A "falls clinic" is described by the CTF as a clinic coordinating the expertise of geriatricians, neurologists, cardiologists, and psychiatrists with resources in audiology, ophthalmology, and podiatry, and home visits by occupational therapists. The number of patients who theoretically require such assessments according to the CTF recommendation is great because approximately 30% of people older than 65 who live in the community fall each year.²⁸ Such assessments are unavailable to most family physicians, however, and so we question the relevance of this recommendation in Canada.

Although rates of screening were relatively high for maneuvers included in the reminder form, screening was poor for items, such as vision and hearing, that were not included in the form. Visual impairment is extremely common in older people and is often unreported.¹ At least one third of elderly people have evidence of hearing impairment when tested audiologically, and hearing impairment is associated with diminished function.¹ In this audit, only 47% of patients were screened for visual impairment and 28% for hearing impairment.

Screening patients who did not have PHEs

Significant differences appeared between patients who had PHEs and those who did not in terms of age, comorbidity, and number of medications. Although only 36 charts of patients who did not have PHEs were audited, results suggest that older, sicker patients who are taking more medications are less likely to receive PHEs.

Other authors have suggested that screening is more likely to occur in the context of PHEs than during routine office visits. Aubin et al⁹ found that visits specifically for PHEs were positively correlated with

screening for hypertension. Flocke et al²⁹ found preventive services were delivered in 32% of visits for acute and chronic illnesses and that new patients and patients who made fewer visits were more likely to receive preventive services. Battista,²¹ in a study of cancer screening, showed that physicians applied screening measures mainly during scheduled general examinations and less frequently during other visits.

Surveys of physicians suggest that they practise most preventive medicine within the context of annual health examinations.¹⁸ The CTF, however, recommends abandoning annual checkups on the grounds that they are nonspecific, inefficient, and potentially harmful.¹⁶ The CTF suggests that age- and sex-specific screening should be implemented opportunistically.

Stange et al³⁰ draw attention to the potential power of delivering preventive care opportunistically because this strategy has the advantage of reaching all active patients. These authors argue that visits for illnesses represent "teachable moments" during which specific preventive services can be targeted toward specific patient risk factors. Despite the possible benefits of such a strategy, lack of time is often a barrier to opportunistic preventive service delivery.

Indeed in this study, patients who did not have PHEs seemed to be more medically complex. Physicians might have been focusing on management of multiple chronic diseases and acute illnesses, leaving little time for prevention or screening. Research is needed to determine the optimal strategies for delivering preventive services.

Limitations

The most serious limitation of this study is that it is a retrospective, observational study without controls. Patients who did not have PHEs were not screened using a reminder form, so it is impossible to determine whether differences were due to using or not using a reminder form or having or not having a PHE. Alternatively, patient differences might be responsible for the differences in screening rates. Chronically ill patients and their physicians might have chosen not to address areas of disease prevention they deemed irrelevant or futile. Nevertheless, we believe, as other authors have suggested, that even the most chronically ill elderly people stand to benefit from some preventive interventions (eg, influenza vaccination, hearing and vision assessments).³¹

A substantial limitation of any chart audit is the potential inaccuracy of the medical record in

documenting what was actually done. The reminder form in this study also served to record actions. As a result, screening done for those who did not have PHEs might not have been recorded as readily as for those who had PHEs using the reminder form. Norman et al³² used standardized patients to compare what physicians actually did with what was recorded: the greatest number of omissions occurred in recording patient education and counseling; physical examination and investigations were usually recorded.

Montano and Phillips³³ looked at cancer screening and found a high correlation between rates reported in chart audit and patient survey, but a low correlation between either method and physician self-report. Stange et al³⁴ measured delivery of several primary care services and calculated the sensitivity and specificity of chart review compared with direct observation of patient visits by a research nurse. They found the sensitivity of the medical record to be low for measuring health-habit counseling and moderate for physical examinations, laboratory tests, and immunization. The specificity of the medical record was generally high. The findings of these studies suggest that a chart audit might have underestimated actual performance of maneuvers associated with counseling, particularly for those who did not have PHEs, but was likely more sensitive for maneuvers not associated with counseling.

A bias might also have occurred because the auditor was not blind to the purpose of the study. The auditor could have underreported screening rates because the study's hypothesis was that CTF recommendations would be poorly followed. Hutchinson et al¹³ examined provision of preventive care to unannounced standardized patients posing as new patients of various ages to family physicians. The standardized patients reported which maneuvers physicians inquired about, performed, or recommended. Delivery of most preventive care services was lower in Hutchinson's study than in our study, supporting our conclusion that the CTF guidelines for screening in the elderly have not been well integrated into clinical practice.

Finally, physicians in this audit were practising in an urban teaching hospital, and the patient population was predominantly women. This could limit the generalizability of results to other settings and to men (however, women make up the majority of Canada's elderly population³⁵). In addition, generalizing these findings might be questionable because of the site-specific nature of the reminder form used at this family practice centre. Physician variables that

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Key points

- The Canadian Task Force on Preventive Health Care (CTF) recommends abandoning traditional annual checkups in favour of age- and sex-specific opportunistic screening.
- This study of patients older than 70 years showed good-to-fair compliance with CTF guidelines on screening for smoking, alcohol use, nutrition, exercise, blood pressure measurement, and tetanus and influenza immunization, but poor compliance with vision and hearing screening.
- Patients who had structured periodic health examinations had much higher levels of screening than patients who were screened opportunistically.

Points de repère

- Le Groupe de travail canadien sur l'examen médical périodique recommande d'abandonner les examens médicaux traditionnels annuels au profit d'un dépistage opportuniste en fonction de l'âge et du sexe.
- Cette étude auprès de patients de plus de 70 ans a fait ressortir une conformité de bonne à passable aux lignes directrices du groupe de travail dans le dépistage du tabagisme, de la consommation d'alcool, de la nutrition, de l'exercice, de la mesure de la tension artérielle et de l'immunisation contre le tétanos et l'influenza, mais une faible conformité en ce qui a trait au dépistage des troubles de la vision et de l'ouïe.
- Les patients qui avaient subi un examen médical périodique structuré avaient fait l'objet de taux plus élevés de dépistage que les patients dont le dépistage était opportuniste.

have been shown to influence screening, such as sex, age, certification in family medicine, and method of physician payment, were not examined in this study.

Conclusion

Despite use of a reminder form during PHEs, screening of elderly patients fell below desirable levels. As the population ages, it becomes imperative that family physicians provide comprehensive, evidence-based preventive care. A reminder tool, designed specifically for the elderly and incorporating the CTF recommendations for screening as well as suggestions for management, might improve

family physicians' implementation of the CTF's evidence-based guidelines.^{36,37}

The CTF has recommended abandoning annual checkups in favour of age- and sex-specific screening to be implemented whenever a patient encounters a family physician.^{1,17} Using a retrospective audit, we found that elderly people were screened much less frequently on an opportunistic basis than when they had PHEs. The relative merits of screening during structured PHEs versus opportunistic screening should be evaluated in a randomized clinical trial. ♦

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