RESEARCH

Does having regular care by a family physician improve preventive care?

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abstract

OBJECTIVE To assess whether regular care from a family physician is associated with receiving preventive services.

DESIGN Secondary analysis of the 1994 National Population Health Survey.

SETTING Cross-sectional sample of the Canadian population.

PARTICIPANTS A total of 15 731 non-institutionalized adults.

MAIN OUTCOME MEASURES Reported visits to general practitioners and specialists in the previous year and reports of having had blood pressure measurements, mammography, and Pap smears.

RESULTS A graded relationship was observed between level of regular care by a family physician in the previous year (none, some, regular) and receiving preventive services. Those without regular doctors and those reporting only some care by a family physician were less likely to have ever had their blood pressure checked than adults receiving ongoing care from a regular family physician. Women reporting some or no care were less likely to have had mammography within 2 years or to have ever had Pap smears.

CONCLUSION Adults who receive regular care from a family physician are more likely to receive recommended preventive services.

résumé

OBJECTIF Évaluer si les soins réguliers d'un médecin de famille sont associés au fait de recevoir des services préventifs.

CONCEPTION Une analyse secondaire à l'Enquête nationale sur la santé de la population de 1994.

CONTEXTE Un échantillon transversal de la population canadienne.

PARTICIPANTS Un total de 15 731 adultes qui ne vivaient pas en établissement.

PRINCIPALES MESURES DES RÉSULTATS Les visites à des omnipraticiens et à des spécialistes rapportées durant l'année précédente et le fait signalé d'avoir subi une mesure de la tension artérielle, une mammographie ou un frottis vaginal.

RÉSULTATS Une relation proportionnelle a été observée entre la régularité des soins par un médecin de famille (aucun, certains, réguliers) et le fait de recevoir des soins préventifs. Les personnes qui n'avaient pas de médecin régulier et celles ne signalant avoir reçu que certains soins d'un médecin de famille étaient moins susceptibles d'avoir eu une vérification de leur tension artérielle que les adultes recevant des soins constants d'un médecin de famille régulier. Chez les femmes qui ont signalé n'avoir reçu que certains ou encore aucun soin, il était moins probable qu'elles aient subi une mammographie durant une période de deux ans ou d'avoir déjà eu un test de Papanicolaou.

CONCLUSION Les adultes qui reçoivent des soins réguliers d'un médecin de famille sont davantage susceptibles de recevoir les services préventifs recommandés.

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Cet article a fait l'objet d'une évaluation externe.
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The model of individuals and families receiving ongoing care from a regular family doctor or general practitioner is familiar to many Canadians.[1] Patients value continuity[1-4] and report higher satisfaction when it is a feature of their care.[5,6] While some consider continuity to be an essential aspect of high-quality primary care,[7,8] its effect on health outcomes and use of medical services is less clear.[9,10] Costs associated with some primary care services might be lower[7,11]; others are not.[12] One area of growing importance is provision of clinical preventive care.[13] Recent evaluations, however, suggest that family physicians are not incorporating the recommendations of the Canadian Task Force on the Periodic Health Examination into practice as much as they should.[14-17]

Some research suggests that having a regular physician increases the likelihood of receiving preventive care.[18-20] Australian patients who went to the same doctors over extended periods were more likely to have had blood pressure (BP) and cholesterol levels checked,[18] but not much more likely to have had tetanus immunizations or Pap smears. One American study found patients' preference for a regular family physician was associated with higher immunization coverage but not screening,[19] while another reported that women with regular doctors were more likely to have been screened for breast and cervical cancer.[20] This latter study, however, was completed in 1987 and might not reflect current practices. Also, it did not specify whether the regular doctor was a family physician or a specialist.

We did not find any Canadian studies assessing whether patients who received ongoing care from regular family doctors were any more likely to receive preventive care. Given the inconsistencies found in previous studies and the lack of research on Canadian practice, we conducted a secondary analysis of National Population Health Survey (NPHS) data to assess whether patients under the regular care of a family physician are more likely to receive preventive services.

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METHODS

The 1994 NPHS was conducted by Statistics Canada to collect comprehensive information about Canadians' health.[21] Data from this survey are available through an academic licence to the University of Toronto and were obtained by one of the investigators (E.F.-T.). No separate ethics approval was obtained for this secondary analysis.

The target population for the NPHS was household residents from all provinces in Canada excluding those living on Native* reserves, on military bases, or in some remote areas. Methods of sample selection have already been described.[22] Briefly, provinces were divided into urban and rural areas, which were further stratified into geographic and socioeconomic areas. Six clusters, usually census enumeration areas, were selected based on size of the area. Lists of dwellings within selected clusters were prepared, and samples of households were chosen from these lists. One member of each household was selected at random to be interviewed. The interviewer-administered questionnaire was designed to gather a range of sociodemographic and health-status information.

Part of the survey addressed whether respondents had regular physicians and what medical services they had used in the previous year. Respondents were also asked whether they had seen a GP or a specialist in the previous year and, if so, how often. Because the survey did not determine whether regular physicians were GPs or whether visits were to a regular physician, definitions were developed for considering that someone had received regular care from a personal family physician. We assumed that anyone who reported having a regular medical doctor and only visited GPs in the previous year had "regular care by a family physician." People who did not have regular physicians, regardless of whether they saw family physicians or specialists, were considered to have "no regular care by a family physician."

Those who reported having regular doctors but seeing only specialists, or seeing both family physicians and specialists, might have had regular family doctors. Those with regular doctors whose visits were to family physicians more than 50% of the time

**The term Native is used to denote the original inhabitants of Canada and their descendants.*

were considered to have had regular care by a family physician. Adults with regular doctors whose visits were to family physicians less than 50% of the time were considered to have had "some" regular care by a family physician. People with regular doctors but no visits in the previous year were also assessed as having had "some" regular care by a family physician because they considered themselves to have an ongoing relationship with a personal physician. The main independent variable, therefore, had three categories representing decreasing levels of regular care by a family doctor (regular, some, none).

The NPHS also asked respondents whether they had ever received preventive services (BP measurement, mammography, and Pap smears[21]) and, if so, within what time interval (1 to 5 years). Expert recommendations at the time the survey was completed were used to assess whether preventive services were received within appropriate intervals.[23-25] For BP and mammograms (if patients were 50 to 74),[24] measurement within 2 years was used[23]; for Pap smears, within 3 years (asked only of women aged 20 to 34).[25] Potential confounding variables considered were age and sex,[26,27] self-reported health status,[28,29] socioeconomic status (education, household income),[26,30]

Table 1. Number of visits by and characteristics of adults receiving regular, some, or no care from a family physician in the previous year

CHARACTERISTICS	TOTAL NO. OF RESPONDENTS	LEVEL OF CARE BY A FAMILY PHYSICIAN		
		REGULAR N (%)	SOME N (%)	NONE N (%)
Mean no. of visits				
• General practitioner		4.8	0.5	1.3
• Specialist		0.7	1.7	0.5
• Any doctor		5.5	2.2	1.8
Mean age (y)	15731	46.8	43.6	39.1*
Sex				
• Female	8070	5914 (55.7)	1414 (47.6)	742 (34.7)
• Male	7661	4705 (44.3)	1558 (52.4)	1398 (65.3)*
Education				
• No degree	13325	9047 (85.3)	2532 (85.4)	1746 (81.9)
• University degree	2377	1556 (14.7)	433 (14.6)	388 (18.2)*
Income				
• Low	2649	1771 (17.5)	441 (15.5)	437 (21.4)
• Middle	9937	6725 (66.4)	1895 (66.7)	1317 (64.6)
• High	2413	1622 (16.0)	507 (17.8)	284 (13.9)
Employment				
• Not working	6102	4421 (41.8)	1004 (33.9)	677 (31.8)
• Working	6163	1958 (58.2)	1958 (66.1)	1449 (68.2)*
Marital status				
• Not married	4984	3220 (30.3)	888 (29.9)	876 (41.0)
• Married	10744	7397 (69.7)	2084 (70.1)	1263 (59.0)*
Has a confidant				
• Yes	13059	8946 (88.8)	2450 (87.7)	1663 (84.2)
• No	1779	1125 (11.2)	343 (12.3)	311 (15.8)*
Self-reported health status				
• Excellent	3899	2322 (21.9)	885 (29.8)	692 (32.3)
• Very good	5781	3743 (35.2)	1191 (40.1)	847 (39.6)
• Good	4268	3087 (29.1)	696 (23.4)	485 (22.7)
• Fair	1388	1121 (10.6)	165 (5.6)	102 (4.8)
• Poor	396	347 (3.3)	35 (1.2)	14 (0.7)*

*P <.001.

employment,[31] social support (marital status, having a confidant),[32] and total number of doctor visits.

Secondary analysis was restricted to adults (people 20 years or older). The characteristics of people with different levels of family doctor care were compared. The association between level of regular care and receiving preventive services was first assessed with a χ^2 test for categorical variables and ANOVA for continuous variables. Responses were weighted to reflect the probability of a person being included in the survey and rescaled to average 1.[21] Because of the large sample size and number of comparisons undertaken, a significance level of $P < .001$ was used to assess bivariate relationships. To assess the independent contribution of regular care by a family doctor to receiving preventive care, adjustments for differences in sociodemographic characteristics, total number of doctor visits made in the previous year, and health status, multiple logistic regression was used for each preventive service considered.[33]

RESULTS

Overall response rate to the survey was 88%. Of the 15 731 adults in the survey sample, 67.5% met the definition of having had "regular care by a family physician." Another 18.9% reported having regular doctors and either some or no visits with them, "some regular care by a family physician," and 13.6% had no regular doctor, "no regular care by a family physician." Using these definitions, visits to family physicians and total visits to physicians were highest among those reporting regular care by a family physician. Specialist visits were more frequent among those reporting some regular care by a family physician.

Adults with regular care by a family physician were older, more likely to be female, less likely to be working, and more likely to report their health as fair or poor (**Table 1**). Those with no regular care were more likely to be male, to be unmarried, to be more educated, and to be less likely to have confidants. People with some regular care by a family physician had some characteristics of adults with regular care (education, income, marital status, confidant) and some of adults with no regular care (employment, health status).

There was a graded relationship between level of regular care by a family physician and whether patients had had BP measurement or mammography within 2 years (**Table 2**). The higher the level of regular care by a family physician, the more likely patients were to have had these preventive services within recommended intervals. Those with the lowest levels of regular care by a family physician were least likely to have ever had these screening maneuvers. For Pap smears, women with regular care by a family physician were more likely to have been screened and to have received screening within the previous 3 years.

These associations remained the same after adjusting for total number of doctor visits in the previous year and differences in the characteristics

Table 2. Receipt of preventive services by level of regular primary care in the previous year

	LEVEL OF CARE BY A FAMILY PHYSICIAN		
PREVENTIVE SERVICE	REGULAR N = 10 619 N (%)	SOME N = 2972 N (%)	NONE N = 2030 N (%)
All patients			
• Blood pressure checked in last 24 mo	9503 (93.7)	2027 (72.3)	1285 (64.8)*
• Blood pressure ever checked	10 078 (99.4)	2741 (97.7)	1908 (96.2)*
Women 50-74 y (n = 2617)			
• Mammogram within 2 years	1223 (59.5)	172 (43.2)	33 (19.9)*
• Mammogram ever	1575 (76.7)	261 (65.4)	88 (53.3)*
Women 20-34 y (n = 2584)			
• Pap smear within 3 years	1547 (84.8)	318 (70.7)	220 (71.1)*
• Pap smear ever	1596 (87.5)	351 (78.0)	244 (78.7)*

*P < *.001.*

Table 3. Odds ratios and 95% confidence intervals for preventive services by level of care by a family physician adjusted for patient characteristics and total number of doctor visits*

	LEVEL OF CARE BY A FAMILY PHYSICIAN		
PREVENTIVE SERVICE	REGULAR OR	SOME OR (CI)	NONE OR (CI)
All patients			
• Blood pressure checked in last 24 mo	1.00	0.32† (0.28-0.37)	0.24† (0.21-0.27)
• Blood pressure ever checked	1.00	0.60‡ (0.39-0.91)	0.36† (0.24-0.53)
Women 50-74 y (n = 2617)			
• Mammogram within 2 years	1.00	0.49† (0.39-0.63)	0.17† (0.11-0.26)
• Mammogram ever	1.00	0.52† (0.41-0.67)	0.33† (0.23-0.46)
Women 20-34 y (n = 2584)			
• Pap smear within 3 years	1.00	0.40† (0.31-0.52)	0.55† (0.40-0.75)
• Pap smear ever	1.00	0.45† (0.34-0.60)	0.67‡ (0.47-0.95)

**Multiple logistic regression model adjusting for total number of doctor visits, age, sex, education, income, employment, marital status, presence of a confidant, and perceived health status.*
† P <.*001*.
‡ P <.*05*.

of patients with varying levels of regular care by a family physician (**Table 3**). Compared with adults with regular care by a family physician, those with some care were 40% less likely, and those with no regular care by a family physician were 64% less likely, to ever have had their BP checked. Both groups were more than 65% less likely to have had a BP measurement within the previous 2 years as recommended.[23]

Similarly, women with some regular care were 48% less likely to have ever had mammograms and 55% less likely to have ever had Pap smears compared with women reporting regular care by a family physician. Those with no regular care by a family physician were 67% less likely to have ever had mammograms and 33% less likely to have ever had Pap smears. For both Pap smears and mammograms, both women with some and no regular care by a family physician were much less likely to have been screened within intervals recommended by expert groups.

DISCUSSION

Adults who reported the highest levels of regular care by a family doctor in the previous year were more likely to have received recommended preventive services and to have received them within intervals suggested by expert groups.[23-25] Previous Canadian studies have assessed delivery of preventive care on the basis of self-reported physician behaviour[15-17] or observed performance with new patients over two office encounters.[14] Our study suggests that, when adults have regular contact with their family doctors, over time they are more likely to receive preventive services.

The need for contact over an extended period in order to deliver preventive services might be related to the competing concerns that family doctors have during office visits. In an American study involving 4454 family medicine patients, 82% of office visits were spent either dealing with acute health problems (58%) or managing chronic health conditions (24%).[34,35] Preventive care was the main concern for only 12% of visits; physicians identifying unmet preventive needs might have to schedule further appointments.

This could suggest that patients need more visits to their family physicians if preventive care is to become more widespread. Opportunistic delivery of preventive care when patients present for other reasons has been recommended[36] to avoid the need for additional visits, but one third of visits to family physicians have been observed to already involve opportunistic preventive care.[37] In addition, one study found that an average adult presenting to a family practice clinic qualified for 25 preventive screening or counseling services.[38] As a result, opportunistic care might not be sufficient to ensure that all recommended preventive services are delivered.

Family physicians report they typically address clinical prevention during separate checkups or periodic health examinations.[17] Thus, additional office visits to address preventive care might have contributed to the higher physician visit rate observed among those with regular family physicians. The adults with regular family physicians, however, also tended to be older, unemployed, and in poorer health. These factors are associated with more severe medical problems and could also have contributed to the higher visit rate. Nonetheless, even after taking into account the total number of physician visits reported by a given adult, a residual relationship remained between regular care by a family physician and having received preventive services.

Limitations

This study relied on patient self-report and was further limited because we had to make assumptions to determine whether an adult was receiving regular care from a family physician. Interpretations, therefore, must be cautious. Differing rates of physician visits between the groups suggest that the categories used likely reflect lesser and greater regular family physician care. Because self-reports of visits and preventive care were not validated, those who made less frequent visits might have forgotten services received. To address this, we controlled for the total number of visits a person made. Another explanation for our findings could be that the health beliefs that lead people to choose regular family doctors influence whether they accept recommendations for preventive care. While this was not measured in the survey, we did control for a range of patient characteristics that might correlate with various health beliefs.

Conclusion

Adults who received ongoing care from regular family physicians were more likely to have received recommended preventive services and to have received them within intervals recommended by expert guidelines. Primary care reform initiatives that support and enhance a model whereby adults are encouraged to have regular care from personal family physicians could result in a greater proportion of the population receiving recommended preventive care.

Acknowledgment

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Contributors

Dr McIsaac *was responsible for the concept and design of the study, contributed to the data analysis, and drafted the manuscript.* **Dr Fuller-Thomson** *was primarily responsible for the analysis and contributed to the study design and drafting the manuscript.* **Dr Talbot** *contributed to the design, analysis, and drafting of the manuscript.*

Competing interests

None declared

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Editor's key points

- This was a secondary analysis of 1994 Canadian National Population Health Survey data.
- Adults were more likely to have regular preventive care, such as blood pressure checks, mammography, and Pap smears, if they were receiving regular care from a family physician.

Points de repère du rédacteur

- Il s'agissait d'une analyse secondaire tirée des données de l'Enquête nationale canadienne sur la santé de la population de 1994.
- Les adultes étaient davantage susceptibles de bénéficier de services préventifs réguliers, comme la mesure de la tension artérielle, la mammographie et les frottis vaginaux, s'ils recevaient des soins réguliers d'un médecin de famille.

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