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Profile of French general practitioners providing opportunistic primary preventive care—an observational cross-sectional multicentre study

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Abstract

Background. Preventive services provided opportunistically by GPs are insufficient. Reasons are most often gathered through GPs' self-reports, rather than through independent observation.
Objective. To assess with passive observers, the degree to which French GPs opportunistically perform primary preventive care during routine consultation.
Methods. Observational cross-sectional multicentre ancillary study of the French ECOGEN study. The study period extended from 28 November 2011 to 30 April 2012. The inclusion criteria were patients seen by GPs at surgery and home consultations in non-randomized pre-determined half-day blocks per week. The non-inclusion criteria were patient's refusal and consultations initially focused on primary prevention in response to patient's request (ancillary study's specific criterion). Using passive observers, data were collected based on the second version of International Classification of Primary Care. Preventive consultations were defined if at least one problem/diagnosis was considered by consensus as definitely related to primary prevention. For each one of the 128 participating GPs, aggregation of data was performed from all his/her consultations. Determinants of the proportion of preventive consultations per GP were assessed by multivariate linear regression.
Results. Considering 19003 consultations, the median proportion of preventive consultations per GP was 14.9% (range: 0–78.3%). It decreased with increased proportion of patients aged 18 or less ($P = 0.006$), with increased proportion of home visits ($P = 0.008$) and with increased proportion of consultations lasting under 10 minutes ($P = 0.02$). None of the GPs' personal characteristics were significantly associated.
Conclusion. Primary preventive care activity was related to the characteristics of GPs' patients and practice organizational markers and not to GPs' personal characteristics.

Key words: General practitioners, organizational efficiency, physician's practice patterns, preventive medicine, professional practice, quality of health care.

Introduction

Prevention is defined as all measures aimed at avoiding or reducing the occurrence and/or severity of illness, accident and disability (1). Prevention and health promotion are among the core skills expected of the GP (2). Depending on the country, preventive recommendations originate from specific multidisciplinary advisory bodies (such as the Canadian Task Force on Preventive Health Care since 1979 and the United States Preventive Services Task Force since 1983) or from learned societies with different medical specializations.

Despite these evidence-based recommendations, the delivery of preventive services in general practice is modest and highly variable according to the disease (3), the organization of the health care system including primary care (4), the competing demands within the consultation when prevention is not its primary focus and the specific remuneration—or not—for preventive acts (5).

The reasons reported by GPs for limiting their preventive activity are multiple and include lack of time, of a reminder system, of a patient-centred information system, of specific compensation, of guideline awareness, of agreement with the guidelines (6) and of agreement between the guidelines (7). However, these data are most often gathered worldwide through GPs' self-reports rather than using independent observational reports (8).

In the present work, we used a large-scale French observational multicentre study in general practice to assess with passive observers the degree to which French GPs opportunistically performed primary prevention care in the course of their routine consultation and to identify determinants of these practices.

Methods

Study design and sample

The present ancillary study was conducted as part of ECOGEN. ECOGEN was an observational cross-sectional multicentre national study performed in general practice in France (9). All 32 French medical schools were invited to participate through their department of general practice. Within each French medical school, affiliated GPs who were internship supervisors were invited to participate. The primary objective of the ECOGEN study was to describe reasons for consultation and procedures of care associated with problems/diagnoses managed in general practice in France. The secondary objective was to assess the determinants of the consultation duration. The participating GPs were blind to the specific objectives of the present ancillary study devoted to primary preventive care.

From 28 November 2011 to 30 April 2012, all patients who were seen by participating GPs at surgery and home consultations in non-randomized pre-determined half-day blocks per week were included. The non-inclusion criteria were patient's refusal and consultation initially focused on primary prevention in response to patient's request. The latter criterion was specific to the present ancillary study. It was based on the underlying hypothesis that focusing on preventive care outside any patient's request might bring greater understanding of variance between GPs in their level of proactive primary prevention activity. Assuming an average of three volunteer GPs per medical school and a total number of 100 participating GPs and 10 consultations per half-day over the study period of 22 weeks, 22 000 consultations were anticipated.

Data collection

The data concerning the GPs' personal characteristics were self-declared: age, gender, practice location, geographic area, regulated fee ceilings, work setting, reception of pharmaceutical industry and health insurance delegates and adherence to the voluntary payment-for-performance system proposed in 2009 [called Contract for Improving Individual Practices (CAPI)], in which some of the criteria focused on specific preventive measures (10). The annual number of consultations was self-reported by each GP, based on their 2010 data provided by the national health system.

The data concerning each consultation were prospectively collected during the consultation by a passive observer first on paper records and were subsequently entered daily in a secured online database. The observers were graduate students in general practice who had undertaken a day-and-a-half training in data collection using the second version of the International Classification of Primary Care (ICPC-2) (11). The website provided assistance in choosing the most accurate ICPC-2 code corresponding to the collected reasons for consultation, problems/diagnoses and procedures of care. At least one problem/diagnosis was entered for each consultation. According to the Subjective, Objective, Assessment, and Plan model (12), several reasons for consultation and procedures of care could be matched with each problem/diagnosis.

A specific variable was built in to define whether the ICPC-2 codes were definitely, potentially or not related to primary prevention. First, an independent coding on the whole ICPC-2 was performed by six researchers involved in the ECOGEN study (JG, JLB, IA, EY, ID, AU). In the case of a discrepancy, deliberation between them led to a consensus. Finally, a rebuttal assessment was conducted by two of the ECOGEN project's promoters (LL, AM). As there was a complete concordance for ICPC-2 codes considered as definitely related to primary prevention, but not for those potentially related, the consultations were defined as including primary prevention care (thereafter referred to as 'preventive consultations') if at least one problem/diagnosis was considered as definitely related to primary prevention (see online supplementary Table). The variable of interest was the proportion of preventive consultations per GP.

For each GP, the aggregation of data was performed from all his/her consultations carried out during the study. The aggregation of data concerned (i) the problems/diagnoses of his/her consultations, the reasons for consultation and the procedures of care; (ii) the sociodemographic characteristics of his/her patients: age, gender, socioprofessional category, student status, health insurance and other exemptions from user fees (accident or occupational disease, chronic diseases, disability); and (iii) his/her consultation context: new patient, home visit, consultation duration (minutes). The patient's age and the consultation

Table 1. Characteristics of the 128 GPs and summary of their consultation characteristics, included in the ECOGEN ancillary study between 28 November 2011 and 30 April 2012

Characteristics of the GPs and of their consultations	*n* = 128
GPs' personal characteristics	
Age (years)	54.0 [27.0–70.0]
Gender	
Men	85 (66.4%)
Women	43 (33.6%)
Practice location	
Urban	66 (51.5%)
Semi-rural	33 (25.8%)
Rural	29 (22.7%)
Geographic area	
Paris metropolitan area	23 (18.0%)
Northeast	32 (25.0%)
Northwest	28 (21.9%)
Southeast	32 (25.0%)
Southwest	13 (10.1%)
Regulated fee ceilings	118 (92.2%)
Work setting	
Individual	27 (21.1%)
Group practice	79 (61.7%)
Multidisciplinary group or health facility	22 (17.2%)
Annual number of consultations	5 000 [2 500–10 500]
Reception of pharmaceutical industry delegates	70 (54.7%)
Number per week	1.0 [0–10.0]
Reception of health insurance delegates	102 (79.7%)
Number per year	3.0 [0–12.0]
Adherence to CAPI	55 (43.0%)
Sociodemographic characteristics of patients (per GP)	
Proportion of patients aged 18 and under	16.2 [2.6–43.1]
Proportion of female patients	58.1 [36.8–77.5]
Proportion of senior managers, intellectual or intermediate professions	8.3 [0–44.5]
Proportion of farmers, craftsmen, tradesmen or business leaders	2.9 [0–11.3]
Proportion of workers or employees	23.6 [5.0–50.0]
Proportion of retired patients	32.8 [6.3–72.1]
Proportion of other socioprofessional category or non-working patients*	8.6 [0–49.0]
Proportion of students	2.1 [0–9.9]
Proportion of universal coverage or state medical aid	2.6 [0–29.4]
Proportion of accident or occupational disease	23.5 [4.4–48.9]
Proportion of chronic disease	22.4 [4.0–48.7]
Proportion of disability	0.6 [0–4.8]
Consultation context (per GP)	
Proportion of consultations with a new patient	4.2 [0–29.8]
Proportion of home visits	3.4 [0–35.8]
Proportion of consultations lasting under 10 minutes	12.0 [0–64.2]

Values are median [minimum–maximum] or number (percentage).
*Excluding students and patients aged 18 years and under.

duration were both dichotomized, respectively, according to patients aged 18 and under—or not—and consultations lasting under 10 minutes—or not.

Statistical analyses

The endpoint of the present study was to describe the GP's proportion of preventive consultations. Categorical variables were described using number and percentage. Continuous variables were described using median and [minimum–maximum]. The aggregate data per GP were reported as median and [minimum–maximum] GP's proportion.

Using a univariate linear regression, we assessed the relationship of the proportion of preventive consultations per GP with his/her personal characteristics, the sociodemographic characteristics of his/her patients and his/her consultation context. The multivariate linear regression analysis included all the variables with a P value ≤0.20 based on the aforementioned univariate analysis. A backward selection on P value was performed to retain the significant variables. We performed all data analyses using R-software, version 3.0.2 (R Foundation, from http://www.r-project.org, Auckland, New Zealand).

Results

General description of the ancillary study

The ECOGEN study involved 27 out of 32 (84.4%) French medical schools and 128 participating GPs. Among the 20 781 consultations conducted over 22 weeks by these 128 GPs, 168 (0.8%) were excluded because the patient refused and 1610 (7.8%) because they were focused on prevention in response to the patient's request. Therefore, 19 003 consultations performed by 128 GPs were included in the present ancillary study. The median number of consultations per GP ranged from 10 to 444 (median: 135).

Characteristics of the GPs and their consultations

Of the 128 GPs, 66.4% were male and aged 27–70 years (median: 54; Table 1). They were evenly distributed across France: 51.5% in urban locations, 48.5% in semi-rural or rural locations; 92.2% used regulated fee ceilings, and 61.7% were in group practices.

The proportion of preventive consultations per GP ranged from 0% to 78.3% (median: 14.9%; Fig. 1). The proportion of female patients ranged from 36.8% to 77.5% (median: 58.1%). The proportion of patients with universal coverage (coverage for the unemployed and low-income insurees) or state medical aid (coverage for foreigners not legally resident in France) ranged from 0% to 29.4% (median: 2.6%). The proportion of home visits ranged from 0% to 35.8% (median: 3.4%). The consultation duration ranged from 8.0 to 40.0 minutes (median: 15.0).

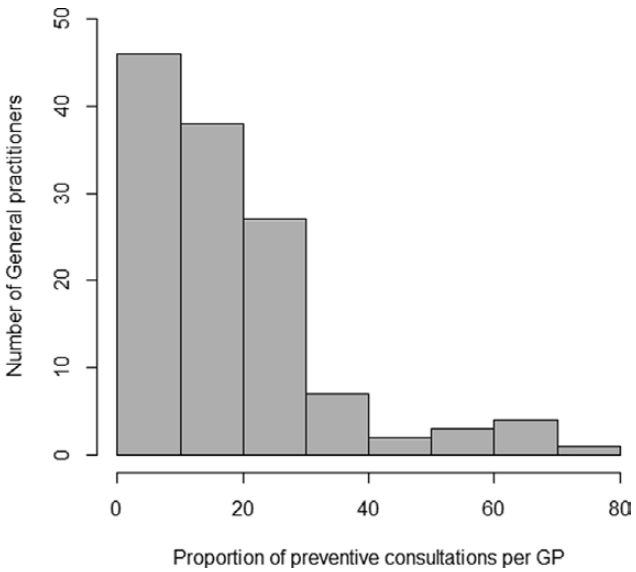

Figure 1. Histogram of the proportion of preventive consultations per GP included in the ECOGEN ancillary study between 28 November 2011 and 30 April 2012.

Determinants of the GPs' primary preventive care activity

Table 2 shows the results of the univariate analysis. The proportion was significantly associated with practice location and geographic area (P = 0.01 and P = 0.04, respectively). GPs performed more preventive consultations if they were practising in an urban rather than a rural location (+9.78, SE = 3.31, P = 0.004) or in Southeast France rather than in the Paris metropolitan area (+8.17, SE = 4.07, P = 0.047). The proportion of preventive consultations per GP decreased with increased proportion of patients aged 18 or under (–0.37, SE = 0.15, P = 0.02), with increased proportion of home visits (–0.31, SE = 0.18, P = 0.008) and with increased proportion of consultations lasting under 10 minutes (–0.24, SE = 0.09, P = 0.007).

The multivariate linear regression (Table 3) showed that only three determinants remained in the final model. The proportion of preventive consultations decreased with increased proportion of patients aged 18 and under (–0.43, SE = 0.15, P = 0.006), with increased proportion of home visits (–0.47, SE = 0.17, P = 0.008) and with increased proportion of consultations lasting under 10 minutes (–0.20, SE = 0.08, P = 0.02; Fig. 2).

Discussion

Main findings

In this large-scale study conducted within the ECOGEN project using an independent external evaluation, we showed that 14.9% of each GP's consultations included opportunistic

Table 2. Univariate linear regression explaining the proportion of preventive consultations per GP included in the ECOGEN ancillary study between 28 November 2011 and 30 April 2012

	Coefficient	Standard error	*P*
GPs' personal characteristics			
Age (years)	+0.10	0.17	0.55
Gender (men)	**−4.58**	**2.84**	**0.11**
Practice location	–	–	**0.01**
Urban	–	–	–
Semi-rural	−4.85	3.16	0.13
Rural	-9.78	3.31	0.004
Geographic area	–	–	**0.04**
Paris metropolitan area	–	–	–
Northeast	−2.73	4.07	0.50
Northwest	+1.25	4.19	0.77
Southeast	+8.17	4.07	0.047
Southwest	−3.03	5.16	0.56
Regulated fee ceilings (yes)	−0.03	5.04	1.00
Work setting	–	–	0.37
Individual	–	–	–
Medical group	+4.59	3.40	0.18
Multidisciplinary group or health facility	+4.99	4.38	0.26
Annual number of consultations	$-9.7\ 10^{-4}$	$7.9\ 10^{-4}$	0.22
Reception of pharmaceutical industry delegates (per week)	**−0.75**	**0.56**	**0.18**
Reception of health insurance delegates (per year)	+0.18	0.61	0.77
Adherence to contract for improving individual practices	+1.73	2.73	0.53
Sociodemographic characteristics of patients (per GP)			
Proportion of patients aged 18 and under	**−0.37**	**0.15**	**0.02**
Proportion of female patients	+0.14	0.18	0.43
Proportion of senior managers, intellectual or intermediate professions	+0.14	0.15	0.35
Proportion of farmers, craftsmen, tradesmen or business leaders	−0.11	0.59	0.85
Proportion of workers or employees	−0.04	0.16	0.82
Proportion of retired patients	+0.01	0.10	0.91
Proportion of other socioprofessional category or non-working patients*	**+0.31**	**0.21**	**0.13**
Proportion of students	+0.73	0.60	0.23
Proportion of universal coverage or state medical aid	+0.24	0.28	0.40
Proportion of accident or occupational disease	+0.05	0.14	0.75
Proportion of chronic disease	+0.09	0.14	0.52
Proportion of disability	−0.81	1.33	0.54
Consultation context (per GP)			
Proportion of consultations with a new patient	−0.04	0.27	0.88
Proportion of home visits	**−0.31**	**0.18**	**0.08**
Proportion of consultations lasting under 10 minutes	**−0.24**	**0.09**	**0.007**

The variables in bold letters were put in the multivariate linear regression model.
*Excluding students and patients aged 18 and under.

primary prevention care, although they were not initially focused on primary prevention in response to a patient's request. This study highlighted the large disparity in daily practice of this primary preventive care activity among the participating GPs (from 0% to 78.3%). It was surprisingly not associated with any of the GPs' measured personal characteristics but rather was related to patient characteristics and to consultation duration and context.

Strengths and limitations

This unprecedented national study, not based on self-reported recall, was designed to asssess GPs' primary preventive care activity and its determinants relative to each GP's profile. For the first time, the data concerning each consultation were independently collected by trained observers—even during home visits—using a validated international classification, the ICPC-2.

Table 3. Multivariate linear regression explaining the proportion of preventive consultations per GP included in the ECOGEN ancillary study between 28 November 2011 and 30 April 2012

	Initial model			Final model		
	Coefficient	Standard error	*P*	Coefficient	Standard error	*P*
GPs' personal characteristics						
Gender (men)	+18.92	6.33	0.31	–	–	–
Practice location	–	–	0.21	–	–	–
Urban	–	–	–	–	–	–
Semi-rural	−5.03	3.47	0.15	–	–	–
Rural	−5.83	3.85	0.13	–	–	–
Geographic area	–	–	0.04	–	–	–
Paris metropolitan area	–	–	–	–	–	–
Northeast	+4.21	4.42	0.34	–	–	–
Northwest	+9.13	4.49	0.04	–	–	–
Southeast	+12.18	4.10	0.004	–	–	–
Southwest	+5.03	5.43	0.36	–	–	–
Reception of pharmaceutical industry delegates, per week	−0.29	0.56	0.61	–	–	–
Sociodemographic characteristics of patients (per GP)						
Proportion of patients aged 18 and under	−0.35	0.17	0.04	−0.43	0.15	0.006
Proportion of other socioprofessional category or non-working patients*	+0.22	0.21	0.30	–	–	–
Consultation context (per GP)						
Proportion of home visits	−0.29	0.20	0.14	−0.47	0.17	0.008
Proportion of consultations lasting under 10 minutes	−0.15	0.09	0.12	−0.20	0.08	0.02

*Excluding students and patients aged 18 and under.

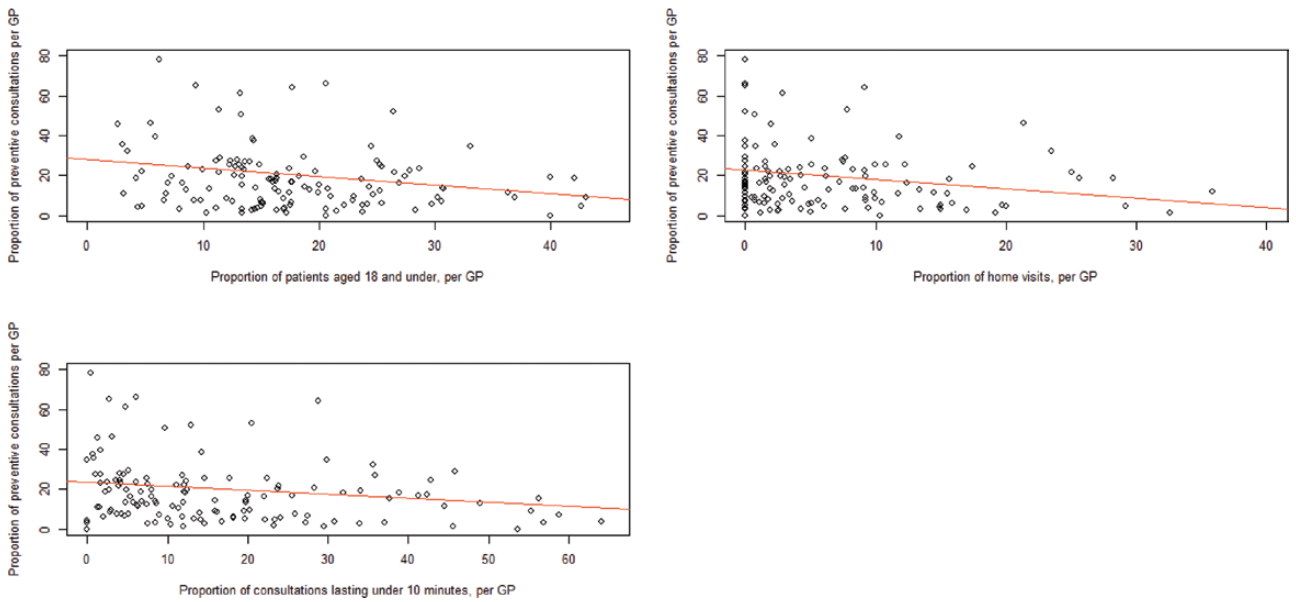

Figure 2. Graphic representation of the linear regression between the proportion of preventive consultations per GP and the three determinants of the final model: proportion of patients aged 18 and under (top left), of home visits (top right) and of consultations lasting under 10 minutes (bottom left) included in the ECOGEN ancillary study between 28 November 2011 and 30 April 2012.

Unfortunately, it does not provide an indicator for preventive problem labels and processes as a group (13). To overcome this difficulty, the research group proposed a rigorous approach to determine after data collection the ICPC-2 codes that could be definitely related to primary prevention (see online supplementary Table).

Even though we cannot ignore a possible Hawthorne effect, our study confirmed the emphasis on opportunistic primary

prevention during a routine consultation in general practice. A previous French study showed that 'Systematic health examination and Prevention' was the first diagnosis in general practice, representing 19% of patients (14). As far as we know, no studies not based on self-reported recall have described a proactive-in-primary-prevention GP profile, besides consultations dedicated to prevention (15,16). Surprisingly, such a profile was not associated with any of the GPs' measured personal characteristics, while self-reported data, for instance, showed that GPs exercising with regulated fee ceilings were more favourable to immunization (16). In contrast, it appeared less frequent in the case of younger patients, high in-home activity, or when consultations lasting under 10 minutes were more common.

We should acknowledge several limitations to our study. First, the study period did not cover a full year, although it extended over 4 months. Apart from a few special cases such as influenza vaccination, weight loss or malaria prevention for travellers, it is unlikely that a GP's primary prevention activity would have differed greatly between May and November. Second, all GPs were internship supervisors, which could have constituted a particular population of GPs whose behaviour might be not representative of all French GPs. Note that the participating GPs were close to the French GP population in terms of age, gender, geographic area, regulated fee ceilings, work settings (16), annual number of consultations, reception of pharmaceutical industry delegates (17) and adherence to CAPI (10). The data concerning each consultation were also representative in terms of socioprofessional categories based on the French National Institute of Statistics and Economic Studies classification, health insurance and consultation duration (18). Third, we can hypothesize that the presence of an outsider during each consultation may have modified GPs' attitudes. To limit this impact, GPs were not told the objectives of this ancillary study. Finally, our study does not provide any information on secondary preventive measures in management of specific diagnosed diseases, and the study design does not allow any conclusion to be drawn about causality. It requires a more detailed analysis of the reasons for consultation and the problems/diagnoses to elucidate what lies behind preventive consultations in general practice.

Clinical implications

Concerning our results, we cannot say whether the GPs' schedule would have been more conducive to primary prevention care or if carrying out such preventive care could also have unintentionally lengthened consultations. In any case, this study confirms that opportunistic primary preventive care activity is closely associated with the issue of time (19), which means money in the French context of fee-for-service. The generalization of payment for performance could change this in the coming years (10). While the reduced proportion of primary prevention associated with 'at-home consultation' was expected (logistical concerns, emergency context or quality of life prevailing over prevention), a young patient population seemed surprisingly associated with less primary prevention activity.

Further research

The reasons for these results may be multifactorial: dilution of primary prevention care—including immunizations—among a large number of reasons for consultation, lack of GPs' interest in primary or universal prevention or lower perception of risk than in adults. These hypotheses should be assessed through specific qualitative studies. GPs' attitudes and skills were not explored in this study. It would be interesting to address the possible influence of psychological factors in further studies, using, for example standardized patients to explore in detail GP-patient interactions in primary preventive care.

Conclusion

This large-scale ancillary study within the ECOGEN study showed, not based on self-reported recall, that French GPs self-initiated primary prevention care in 14.9% of their routine consultations. Their primary preventive care activity could be more determined by their patient population's characteristics (age) and their practice organization (home visits, consultation duration) than their intrinsic characteristics. Further studies are needed to determine possible causes and to decode the 'black box' of preventive consultations in general practice.

Supplementary material

Supplementary material is available at *Family Practice* online.

Declarations

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Ethical approval: a statement was made to the Advisory Committee on Information Processing in Health Research [Comité consultatif sur le traitement de l'information en matière de recherche dans le domaine de la santé (CCTIRS No.11605)] and the French Commission on Information Technology and Liberties [Commission nationale de l'informatique et des libertés (CNIL No.1549782)]. The ECOGEN project received the approval of the Ethics Committee Sud-Est IV (No.L11-149). Authorization for the use of ICPC-2 was obtained from the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians.

Conflict of interest: none.

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