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Changes in the remuneration system for general practitioners: effects on contact type and consultation length

Christel E. van Dijk¹, Robert A. Verheij¹, Hans te Brake², Peter Spreeuwenberg¹, Peter P. Groenewegen^{1,3,4} and Dinny H. de Bakker^{1,5}

(1) NIVEL, Netherlands Institute for Health Services Research, P.O.Box 1568, 3500 BN Utrecht, The Netherlands

(2)IMPACT, Dutch Knowledge and Advice Center for Post-disaster Psychosocial Care, Diemen, The Netherlands

(3)Department of Sociology, Utrecht University, Utrecht, The Netherlands

(4)Department of Human Geography, Utrecht University, Utrecht, The Netherlands

(5)Scientific Centre for Transformation in Care and Welfare (TRANZO), Tilburg University, Tilburg, The Netherlands

ABSTRACT

In The Netherlands, the remuneration system for GPs changed in 2006. Before the change, GPs received a capitation fee for publicly insured patients and fee for service (FFS) for privately insured patients. In 2006, a combined system was introduced for all patients, with elements of capitation as well as FFS. This created a unique opportunity to investigate the effects of the change in the remuneration system on contact type and consultation length. Our hypothesis was that for former publicly insured patients the change would lead to an increase in the proportion of home visits, a decrease in the proportion of telephone consultations and an increase in consultation length relative to formerly privately insured patients. Data were used from electronic medical records from 36 to 58 Dutch GP practices and from 532,800 to 743,961 patient contacts between 2002 and 2008 for contact type data. For consultation length, 1,994 videotaped consultations were used from 85 GP practices in 2002 and 499 consultations from 16 GP practices in 2008. Multilevel multinomial regression analysis was used to analyse consultation type. Multilevel logistic and linear regression analyses were used to examine consultation length. Our study shows that contact type and consultation length were hardly affected by the change in remuneration system, though the proportion of home visits slightly decreased for privately insured patients compared with publicly insured patients.

Declaration behaviour regarding telephone consultations did change; GP practices more consistently declared telephone consultations after 2006.

INTRODUCTION

Rising healthcare cost and concerns about the accessibility and quality of care have brought about healthcare reforms in several countries. Changes in the remuneration system for physicians are recognised as an important element in these reforms [1] and are assumed to affect physicians' behaviour [2–10]. Specific characteristics of the healthcare market, such as the uncertainty of healthcare needs and information asymmetry between physician and patient, result in physicians being able to influence the demand for healthcare [11–13]. The physicians' remuneration system is seen as an important instrument to overcome the problems regarding these specific characteristics, as income is thought to be one of the elements, besides leisure and medical ethics and standards, in the utility function of physicians [14].

The three main remuneration systems with many combinations are the fee-for-service (FFS) system, the capitation-based system and the salaried system. In an FFS system physicians are paid per item; in a capitation-based system physicians receive an annual capitation fee per patient; in a salaried system physicians receive a fixed salary. In an FFS system, a clear relationship exists between workload and income, whereas in a capitation system income is related to the number of registered patients. In a salaried system, income is directly linked to neither workload nor patient-list size.

Literature suggests that primary care physicians paid under an FFS system have longer working hours, provide more contacts, make fewer hospital referrals and issue fewer repeat prescriptions compared with physicians paid under a capitation system [2, 6, 15, 16]. Compared with a salary system, GPs remunerated under FFS have been found to make more home visits [7, 8, 17]. Most evidence, however, comes from international comparisons or cross-sectional comparisons within countries. Most of these studies on the effects of actual changes in the remuneration system on physician services do not include a control group, making it difficult to draw inferences regarding the causality of the relations found. The few studies that do include a control group suggest that changes in the remuneration system do not necessarily lead to changes in the contact rate and if they do effects are small [4, 6, 18, 19]. Other aspects of care, however, such as the type of contact or consultation length, might be more easily influenced by physicians. Kristiansen and Holtedahl and Kristiansen and Mooney [7, 8] investigated the influence of the remuneration system (FFS or salary) in Norway on the type of GP contact (surgery vs. home) and consultation length. In a cross-sectional study, they found that doctors paid on an FFS basis had a higher proportion of home visits, especially scheduled home visits, and shorter consultation length, but it remained unclear whether there was a causal relationship.

In this article, we try to gain more insight into the relationship between the remuneration system and type of contact and length of consultation by comparing

GPs' allocation of time to patients who were formerly publicly insured and formerly privately insured before and after changes in the reimbursement system. Earlier research on the same changes has shown limited effects of the changes in the reimbursement system on the contact rate in agreement with other studies [19]. We used data from GPs' electronic medical records (EMRs) with respect to contact type and videotaped consultations to assess consultation length to address the following question: to what extent has GPs' allocation of time changed in terms of contact type (consultations, home visits or telephone consultations) and length of consultation for privately and publicly insured patients between 2002 and 2008 as a result of changes in their remuneration system?

BACKGROUND TO THE DUTCH HEALTHCARE SYSTEM AND HYPOTHESES

In January 2006, the Dutch government introduced a new health insurance act based on the principles of regulated competition [20]. The former system, where each inhabitant, mainly depending on income, was either publicly (sickness fund, 63 %) or privately (37 %) insured, was replaced by a single generic compulsory basic health insurance. The aims of the reform were to make the healthcare system more efficient, to improve the quality of healthcare and to make it more patient-centred, while keeping it accessible to all [21]. With the revised health insurance system, the GP remuneration system changed. In short, a system with FFS for privately insured patients and capitation payments for publicly insured patients was replaced by a system combining both capitation and FFS. The differentiation in remuneration between publicly and privately insured patients was thought to be undesirable as it could result in differences in the provision of GP care between these patient groups [22, 23]. Also, GPs believed the former remuneration system of capitation for publicly insured patients did not reward their time investment. The aim of the new remuneration system was to combine the good features of both systems: on the one hand, a capitation system through which a strong relationship between a patient and GP could be established and, on the other hand, an FFS system to realise financial compensation for work performed, but with a modest fee per service to prevent overproduction. For privately insured patients before 2006 and all patients since 2006, the amount of the remuneration depended on the type of contact and the length of that contact. For home visits, the remuneration was higher than for consultations and the longer a home visit or consultation the higher the remuneration. The financial consequences of these changes are shown in Table 1.

[TABLE 1]

Hypotheses

Given the fact that—at the onset of the remuneration change—GPs were uncertain about the consequences of the change in reimbursement system for their turnover, we assume that GPs tended to try and maximise their turnover. This will be reflected in both the consultation types (hypotheses 1 and 2) and consultation length (hypothesis 3). These are clarified below.

Contact type

Before formulating hypotheses about the contact type, we need to calculate relative revenue per minute for each contact type since the decisions of GPs between contact types will be made on the difference between the marginal benefits and costs (time costs) for each service. We assumed that GPs' decision on the type of contact is solely based on the revenue at the time of service. So, we did not incorporate the effect of the capitation fee since GPs receive the capitation fee before having performed any patient services and this could not have influenced GPs' decision on the type of contact at the time of service. Contact types vary in their time investment and therefore costs. For telephone consultations we assume an average time investment of 5 min, for consultations 10 min and for home visits 20 min [9].^{1,2} The revenue of consultations and home visits is dependent on the percentage of long consultations and home visits since longer consultations and home visits have a higher revenue (Table 1). On average, 14 % of consultations is claimed as a 'long' and 26 % of home visits [24]. The extra revenue of 'long' consultation and home visit was incorporated in the revenue per minute (Table 2).

[TABLE 2]

For publicly insured patients before 2006, GPs had time costs for all contact types. Within a capitation system, an extra contact just generates more work for the same income. The time cost was twice as high for home visits compared with consultations for publicly insured patients (20 vs. 10 min), making it more appealing to provide consultations. Since 2006, the revenue for GP consultations is 30 % higher compared with home visits (€1.03 vs. €0.79), making home visits relatively more appealing. Therefore, we expected a moderate shift of services from consultations to home visits for publicly insured patients. For privately insured patients, the revenue for GPs was 30 % higher compared with home visits both before and since 2006. Therefore, we expected no shift of services from consultation to home visits. In sum, we hypothesised that the proportion of home visits would decrease for privately insured patients compared with publicly insured patients between 2002 and 2008 (hypothesis 1).

For publicly insured patients before 2006, the time costs for consultations was twice as high as for telephone consultations (10 vs. 5 min). Since 2006, the revenue for GPs for consultation is €1.03 per minute and €0.90 for telephone consultations, a difference of 14 %. Due to the decreased difference in revenue/costs, we expected a shift of services from telephone consultations to consultations for publicly insured patients. The revenue for GPs for privately insured patients was 14 % higher for consultations compared with telephone consultations in 2005 and this relative difference did not change since 2006. Therefore, we do not expect a shift of services between consultations and telephone consultations for privately insured patients. Therefore, we expected a higher increase of telephone consultations for privately insured patients compared with publicly insured patients (hypothesis 2).

Consultation length

In general, we expected consultation length to have increased between 2002 and 2008. The population is getting older, and GPs are more often faced with patients with multi-morbidity, which involves more consultation time [25, 26]. Also, there was a general tendency to deal with chronic patients and prevention predominantly in a primary care setting and to limit the role of medical specialists, which was expected to influence the consultation length in both publicly and privately insured patients. We hypothesised that the consultation length had increased more for publicly insured patients than for privately insured patients (hypothesis 3). For publicly insured patients, GPs only received a capitation fee for every patient before the reform, which gave no incentive for long consultations. Since 2006, GPs have received a fee for every consultation and the amount of the remuneration is dependent on the consultation length. For privately insured patients the fee was dependent on the consultation length before as well as after 2006 but the absolute difference in reward was lower after 2006 and therefore we expected a decrease in consultation length.

METHODS

Data

Contact type

To analyse the effect on contact type, data were used from EMRs of GP practices that participated in The Netherlands Information Network of General Practice (LINH) [24]. The LINH database holds longitudinal data on contacts, morbidity, prescriptions and referrals. The network is a dynamic pool of practices, with annual changes in composition. LINH is registered with the Dutch Data Protection Authority; data are handled according to the data protection guidelines of the authority. For the purpose of this study, we used data from GP practices that recorded their contact data (2002–2005) or claim data (2006–2008) adequately throughout the year of measurement and where patients' (former) health insurance type (publicly or privately) was known. As LINH consists of a dynamic pool of practices, the number of practices varied between the years. In 2002, 36 general practices and 580,646 contacts were included, in 2003 51 and 688,965, in 2004 46 and 658,451, in 2005 45 and 695,199, in 2006 61 and 743,961, in 2007 58 and 659,434 and in 2008 47 general practices and 532,800 contacts. Overall, these GP practices were representative of Dutch GP practices with respect to degree of urbanisation and region, but not with respect to practice type (single-handed, dual, group or health centre). The LINH database holds more data from GPs in a group or health centre than single-handed GPs.

Consultation length

For the analysis of consultation length, data were used from videotaped consultations collected in the second Dutch National Survey of General Practice (DNSGP-2) [27] and LINH. For consultation length in 2002, data were used from videotaped consultations in DNSGP-2 and for 2008 from LINH. One hundred forty-two of the GPs (73 %) in the DNSGP-2 gave permission for the consultations in their surgery to be videotaped. These GPs were representative of the Dutch GP population with

respect to age, gender and urbanisation [28]. Of the patients, 88 % gave informed consent to participate in the study. Approximately 20 consultations of every GP were recorded between 2000 and 2002. For videotaped consultation in 2008, 40 GPs within 21 practices (43 %) gave permission for the consultation in their surgery to be videotaped. These GPs were representative of the Dutch GP population with respect to sex and urbanisation. Approximately 20 consultations of every GP were recorded between July 2007 and May 2008. Only consultations where patients' characteristics (age, gender and (former) health insurance type) were known were included in the analyses. In total, 1,994 videotaped consultations in 85 practices in 2002 and 499 consultations in 16 practices in 2008 were analysed (five practices that first participated after 2006 could not supply any health insurance type for patients in 2005 and were therefore excluded). In this study, the consultation length in minutes and dichotomised consultation lengths shorter and longer than 20 min were used. For privately insured patients before 2006 and all patients since 2006, the amount of the remuneration depended on the type of contact and the length of that contact, with 20 min as a cutoff point.

MEASURES

Dependent variables

Contact type

Three contact types were distinguished: consultations (in surgery), home visits and telephone consultations.

Length of consultation

Length of consultation was based on the videotaped consultations. Consultation length was measured with a stopwatch, starting at the first verbal expression and stopping after the last verbal expression. Interruptions in the consultation were subtracted from the total consultation length. Length of consultations was analysed as a continuous variable and also as a dichotomised variable dividing consultations shorter and longer than 20 min. A cutoff point of 20 min was adopted since the price of consultations shorter and longer than 20 min differs (Table 1).

Independent variables

Health insurance type

For each patient the health insurance type was taken within the specific year from 2002 to 2005. Since 2006, one basic health insurance has been introduced with no differentiation between publicly and privately insured patients. For patients in 2006, 2007 and 2008, the last known health insurance type was taken.

In all analyses, we controlled for possible differences in age and gender composition of patients between the years. Age was included as polynomial confounder in the analyses (age, age² and age³). The Dutch population is getting older, a phenomenon that is known to affect contact type and consultation length [9, 29].

Statistical analyses

To analyse the trend in consultation type between 2004 and 2007 (hypotheses 1 and 2), a multilevel repeated multinomial regression analysis was conducted comparing three types of patient contact: (1) practice consultation, (2) home visit and (3) telephone consultation. Home visits (2) and telephone consultations (3) were regarded as 'treatment groups' and were compared with consultations (1). In the multilevel analysis three levels were distinguished: contacts within patients and patients within GP practices. It was not possible to distinguish GPs within GP practices. The dependent variable in the analysis was the contact type. Year and health insurance type were included as independent variables. The analysis was corrected for differences in the age and gender composition of patients. Co-variances and variances on the patient and practice level were estimated because variances and co-variances of the outcome variable varied over time, which is often the case with longitudinal data [30]. To test whether or not the insurance effect changed over time (indicating a difference in trend between privately and publicly insured patients and the effect of the change in remuneration), a chi-squared test was performed on the difference between 2004/2005 and 2006/2007. The patient-level co-variables (age, gender and health insurance type) were estimated across years, assuming that the effects were constant over time. The significance level was set at $p < 0.01$.

The trend in consultation length between 2002 and 2008 (hypothesis 3) was analysed with a multilevel linear regression analysis (continuous outcome) and a multilevel logistic regression analysis (dichotomised outcome). Consultation length was taken as the dependent variable and year and insurance type as the independent variables. Since consultation length was not normally distributed, the natural logarithm of consultation length was used and geometric means were calculated in the multilevel linear regression analysis. The analyses were corrected for differences in age and gender composition. The interaction term year* insurance type was added to analyse whether the trend in consultation length differed between publicly and privately insured patients. Co-variances and variances on the practice level were estimated. The significance level was set at $p < 0.10$ and $p < 0.05$. Owing to the limited number of patients in 2008 and the cluster effect within the 16 practices, the power of the analyses is limited. Therefore, clinically relevant differences of $p < 0.10$ were also seen as significant.

Multilevel analyses were conducted with MLwiN 2.02.

RESULTS

Contact type

Figure 1 shows the contact type for publicly and privately insured patients adjusted to the age and gender composition of publicly insured patients in 2002. The percentage of consultations ranged between 71 and 75 % for publicly insured patients and between 71 and 74 % for privately insured patients. The percentage of home visits ranged between 6 and 7 and 5 and 7 % respectively and telephone consultations between 18 and 22 % for both publicly and privately insured patients. Table 3 shows the results of the multilevel repeated multinomial regression analysis. The percentage of consultations, home visits and telephone consultations did not change significantly between 2004 and 2007 for publicly insured patients or for

privately insured patients. Privately insured patients in all years had a lower percentage of home visits than publicly insured patients, but the ratio of consultations and home visits significantly decreased after the insurance reform to an odds ratio of 0.77 in 2007 ($p < 0.01$). In other words, the change from capitation for publicly insured patients and FFS for privately insured patients to a combined system of capitation and FFS resulted in a higher decrease in the proportion of home visits for privately insured patients compared with publicly insured patients. Privately insured patients had a lower percentage of telephone consultations in 2005 and 2007, but the ratio of telephone consultations and home visits did not change between 2004 and 2007. Another finding in the multilevel repeated multinomial regression analysis was the smaller variation between general practices concerning telephone consultations after 2006 (smaller ICC in Table 3). It seems that GP practices have claimed or registered more telephone consultations since 2006.

[TABLE 3 AND FIGURE 1]

Consultation length

The length of consultations increased between 2002 and 2008 for both publicly and privately insured patients ($p < 0.1$). The geometric mean consultation length in minutes, without controlling for age, gender and health insurance type, changed from 8.35 in 2002 to 9.08 in 2008. The geometric mean consultation length (for patients with an average age of 44.4 years) changed for publicly insured patients from 8.52 to 9.28 min per consultation and for privately insured patients from 9.16 to 9.32 min per consultation. Although the increase in consultation length seems to be greater for publicly insured patients than for privately insured patients, this difference was not significant ($p = 0.48$).

Also, the overall percentage of consultations longer than 20 min significantly increased between 2002 and 2008 ($p < 0.05$). The percentage of consultations longer than 20 min (for patients with an average age of 44.4 years) increased for publicly insured patients from 3.8 to 7.3 % and for privately insured patients from 5.2 to 7.0 %. The difference in trend between former publicly and former privately insured patients was not significant, however ($p = 0.48$).

DISCUSSION

We investigated whether GPs' use of time changed in terms of contact type and consultation length as a result of the change in the remuneration system of GPs in The Netherlands in 2006. Our first hypothesis was that the proportion of home visits had decreased more for former privately insured patients than for former publicly insured patients between 2002 and 2008. This was confirmed. Second, we hypothesised that the proportion of telephone consultations had increased more for former privately insured patients than for former publicly insured patients. This hypothesis was rejected. Our third hypothesis was that the consultation length had increased more for publicly insured patients than for privately insured patients between 2002 and 2008. The consultation length did increase in general between 2002 and 2008, but no difference in the trend of consultation length was found between publicly and privately insured patients. Further, our study showed that GP

practices had more consistently claimed or registered telephone consultations since the health insurance reform for both publicly and privately insured patients.

Strengths and limitations of the study

A number of points should be noted. General practices were selected on the basis of the quality of their EMR and may represent the more motivated Dutch GPs. This could have an effect on the medical ethics of GPs. Effects of the remuneration system on consultation length and type could therefore be different in the Dutch GP population compared with our sample, although other Dutch GPs show similar contact rates and types [31]. In addition, there could be a registration bias. Since 2006, GPs have been reimbursed for every service for both former privately and publicly insured patients, whereas before 2006 GPs were only reimbursed for every service for privately insured patients. FFS stimulates GPs to correctly record every provided service. In LINH registration bias is counteracted by the recording instruction for participating GP practices and the inclusion of GP practices with a complete registration. And if a registration bias did occur, we do not expect this to be different for each contact type and therefore to have influenced our results. The registration bias therefore did not affect the difference in trend analyses. Group practices are overrepresented in LINH, which could have affected our results in both directions. Last, the analyses were based on a dynamic population and therefore the GP practices included in the analyses varied between the years, which could have affected the results. For this reason, we performed multilevel analyses to correct for variations in participating practices between the years.

Comparison with other research

Our results show that a change in remuneration system from FFS for privately insured patients and capitation for publicly insured patients to a combined capitation and FFS system for all patients resulted in a higher decrease in the proportion of home visits for privately insured patients compared with publicly insured patients. This difference is relatively small. Our results are similar to, although less strong than, the cross-sectional study of Kristiansen and Holtedahl [7] that showed that home visits were nearly twice as likely to have been carried out by FFS doctors than salaried ones. The proportion of home visits did not significantly decrease for publicly and privately insured patients between 2004 and 2007. An earlier study in The Netherlands showed that the proportion of home visits by Dutch general practitioners decreased between 1987 and 2001 from 14.1 to 7.4 % [32]. Our results show that this decrease did not continue.

We expected the proportion of telephone consultations to increase for privately insured patients compared with publicly insured patients. This hypothesis was rejected. The odds of telephone consultation between privately and publicly insured patients were stable at around 0.95 to 0.98 between 2004 and 2007. The absence of difference in trend between privately and publicly insured patients could be ascribed to the limited number of diagnoses for which telephone consultations are an option. The most often recorded diagnoses for telephone consultations are urinary tract infection and cough [24]. For more serious health complaints telephone consultation is not an option and patients will visit the GP at the surgery. The proportion of telephone consultations might for that reason not depend on GPs' remuneration system.

Another finding of our study was that the consultation length increased for both publicly and privately insured patients between 2002 and 2008. The reason for this overall increase could be the increased role of GPs in preventative activities and the increased number of patients with multimorbidity. We expected a higher increase in consultation length for former publicly insured patients. This did not, however, appear to be the case. The trend in consultation length did not differ between publicly and privately insured patients. An explanation for the absence of this effect could be the prescheduled consultation that most GP practices offer. Patients, whether privately or publicly insured, are booked for a specific time slot (usually 10 min) by the GP's secretary. Our results are contrary to the study of Kristiansen and Mooney [8], which found consultations to be 0.7 min longer for salaried doctors than for FFS-paid doctors, but is consistent with the results of van der Berg et al. [9] who found no influence of the share of patients with capitation in GP practices on consultation length. The percentage of consultations longer than 20 min is not in agreement with claims data for 2008 [24]. Our study found a percentage of long consultations of 7 % in 2008 in comparison with almost 14 % in claims data from LINH practices. This difference could partly be explained by the fact that patients visiting GPs with psychosocial problems take longer [33] and these patients could be less willing to give informed consent to participate in a study using videorecording [34].

Our study overall shows that the change in the system of reimbursement barely affected GPs' use of time in terms of contact type and consultation length, but it did change claim or registration behaviour with regard to telephone consultations. The proportion of home visits decreased more among former privately insured patients than former publicly insured patients, but the absolute difference in proportion of home visits was small. Prior to the change in reimbursement in 2006, the lack of financial compensation for work with publicly insured patients was seen by GPs as unfair. Interestingly, the change has not actually affected their allocation of time. The choices of GPs to influence the provided healthcare to patients are dependent on the utility function of GPs, which is thought to contain three elements: medical ethics and standards, income and leisure [14]. The fact that changes in provision of health care after changes in remuneration were limited could be explained by the more important role of medical ethics in the utility function of GPs. Almost all Dutch citizens were originally publicly insured, since younger people have lower incomes, and only in older age, with rising incomes, did some of them become privately insured. Our results suggest that GPs do not think it ethically correct to change the manner of healthcare provision in terms of contact type and length for the same person when their payment system is changed.

Overall, this study showed that financial incentive only had a limited impact on the type of contact and no impact on consultation length. GPs seem to do what they need to do, irrespective of the way in which they are remunerated.

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FOOTNOTES

1We assumed the time investment to be dependent of the type of consultation and equal between publicly and privately insured patients. Hypotheses are based on the relative difference between contact types at a certain moment, which are not influenced by increasing the time costs for privately insured patients.

2Our hypotheses are stable for varying time investments with the time investment for home visits > consultations > telephone consultations.

TABLES AND FIGURES

Table 1 GPs' remuneration in The Netherlands before and after the change in remuneration

	Before change (2005)		After change (2006 and onward)
	Publicly insured	Privately insured	All insured
Remuneration system			
<i>Capitation fee</i>			
Basic capitation fee ^a	€77.00	–	€52.00
<i>Fee for service^b</i>			
Consultation <20 min	–	€24.80	€9.00
Consultation >20 min		€49.60	€18.00
Home visit <20 min		€37.20	€13.50
Home visit >20 min		€62.00	€22.50
Telephone consultation		€12.40	€4.50

^a Additional capitation fee for older people and people living in a deprived area

^b Tariffs are not differentiated per age group or for people living in a deprived area

Table 2 GPs' revenue per minute or time costs per contact type in The Netherlands before and after the change in remuneration

	Time costs (minutes)	Percentage 'long' contacts (%)	Revenue per minute ^a		
			Before change (2005)		After change (2006 and onward)
			Publicly insured	Privately insured	All insured
Consultations	10	14	€0.00	€2.83	€1.03
Home visits	20	26	€0.00	€2.18	€0.79
Telephone consultations	5	–	€0.00	€2.48	€0.90

^a Revenue per minute: [(proportion 'short' contacts × fee short contact) + (proportion 'long' contacts × fee long contact)]/time costs

Fig. 1 Contact for (former) publicly and privately insured patients in 2002–2008, adjusted to the age and gender composition of publicly insured patients in 2002

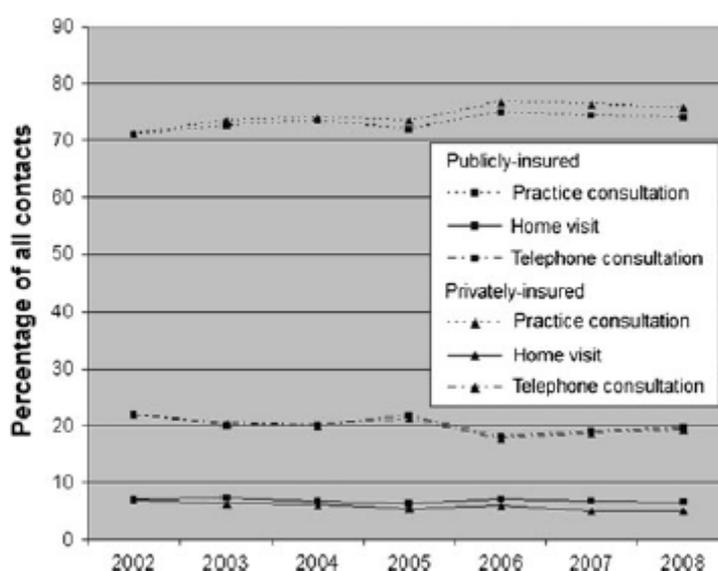


Table 3 Multilevel repeated multinomial regression analysis for home visits and telephone consultations in comparison with practice consultations, 2004–2007^a

	Home visits versus practice consultations					Telephone consultations versus practice consultations				
	2004	2005	2006	2007	χ^2 test 2004/2005 versus 2006/2007	2004	2005	2006	2007	χ^2 test 2004/2005 versus 2006/2007
	OR (99 % CI)					OR (99 % CI)				
Year	0.02 (0.02–0.03)	0.02 (0.01–0.02)	0.02 (0.02–0.02)	0.02 (0.02–0.02)	n.s.	0.17 (0.12–0.25)	0.20 (0.14–0.28)	0.19 (0.16–0.21)	0.20 (0.17–0.22)	n.s.
Insurance (reference publicly insured patients)	0.85 (0.79–0.91)	0.87 (0.81–0.93)	0.80 (0.74–0.85)	0.77 (0.72–0.83)	$P < 0.01$	0.98 (0.95–1.00)	0.95 (0.92–0.97)	0.98 (0.96–1.00)	0.97 (0.94–0.99)	n.s.
Gender ^b (reference male)	1.30 (1.26–1.34)					1.21 (1.20–1.22)				
Age ^b	1.04 (1.04–1.05)					1.00 (1.00–1.00)				
Age ^{2b}	1.00 (1.00–1.00)					1.00 (1.00–1.00)				
Age ^{3b}	1.30 (1.26–1.34)					1.00 (1.00–1.00)				
	Variance (SE)					Variance (SE)				
Between-patients variance	7.20 (0.06)	6.88 (0.06)	6.88 (0.06)	6.62 (0.06)	6.93 (0.07)	0.75 (0.01)	0.59 (0.01)	0.50 (0.01)	0.50 (0.01)	0.50 (0.01)
Between GP practice variance	0.26 (0.06)	0.23 (0.05)	0.23 (0.05)	0.20 (0.04)	0.21 (0.04)	0.84 (0.17)	0.76 (0.16)	0.16 (0.03)	0.16 (0.03)	0.15 (0.03)
ICC ^c	0.02	0.00	0.00	0.03	0.04	0.16	0.14	0.02	0.02	0.02
95 % range on GP-practice	0.01–0.03	0.01–0.02	0.01–0.02	0.01–0.04	0.01–0.03	0.04–0.82	0.05–0.83	0.11–0.32	0.11–0.34	0.11–0.34

^a Covariance and correlation between home visits and telephone consultation are available on request

^b Gender, age, age² and age³ were estimated across years, assuming that the effect was constant over time

^c Intra-class correlation between the two upper levels (patients and GP practice); the ICC is the relative contribution of patient and GP practice variance