ORIGINAL RESEARCH

Follow-up After Telephone Consultations at Out-of-Hours Primary Care

Linda Huibers, MD, PhD, Jan Koetsenruijter, MSc, Richard Grol, PhD, Paul Giesen, MD, PhD, and Michel Wensing, PhD

Background: **After a contact with a primary care physician (PCP) cooperative for out-of-hours care, many patients have subsequent contact with health care. Little is known about the factors associated with these follow-up contacts. The objective of this study was to examine whether patient experiences with nurse telephone consultations and the cooperative's organizational characteristics were associated with the probability of follow-up contact.**

Methods: **We conducted a cross-sectional study of patients attending 16 Dutch PCP cooperatives (2009 to 2011) using a validated questionnaire to measure patient experiences with nurse telephone consultations and patient-reported follow-up. Participating cooperatives provided information on 12 organizational characteristics. Multilevel regression modeling was used to identify associations.**

Results: **A total of 7039 patients returned a questionnaire (50.4%), of which 5678 were complete. About half of patients reported a follow-up contact (47%). Regression analyses showed increasing probability of follow-up contact in patients with higher age (≥65 years; odds ratio [OR], 2.39), patients receiving a home visit (OR, 1.32), and cooperatives with a higher percentage of telephone consultations (OR, 1.02) and a decreased probability among patients with more positive experiences with a nurse via telephone contact (OR, 0.68).**

Conclusion: **Although follow-up contacts can be medically required, a substantial number of contacts seem to be not required and thus are potentially avoidable (eg, by changes in work routine and communication). (J Am Board Fam Med 2013;26:373–379.)**

Keywords: **Out-of-Hours Medical Care, Patient Satisfaction, Primary Health Care, Telemedicine, Triage, Utilization**

In many countries, out-of-hours primary care is increasingly being provided in large-scale organizations such as primary care physician (PCP) cooperatives.[1,2] PCP cooperatives are large primary care organizations in which 40 to 250 PCPs take care of populations ranging from 100,000 to 500,000 citizens.[3] PCP cooperatives are accessible by telephone; nurses perform telephone triage, supervised by PCPs. In the Netherlands, PCP cooperatives use telephone triage by trained nurses to coordinate health care provision, managing access and patient flows. The increasing demand for out-of-hours care in recent years underlines the importance of managing access by telephone triage and the potential effect on patient flows and health professionals' workloads.[1,4] Most studies of telephone triage found that triage by nurses decreased PCP workload substantially without increasing the number of adverse outcomes.[5–7] However, about a third to half of patients had a follow-up (subsequent) contact with a health care provider for the same health problem within a few weeks after the out-of-hours contact.[8–10] It remains unclear whether all these follow-up contacts are needed.

Several factors related to individual patients can result in higher numbers of follow-up contacts. Medical factors such as changes in patients' medical

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From the Radboud University Nijmegen Medical Center, Scientific Institute for Quality of Healthcare, Nijmegen, The Netherlands.

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Corresponding author: Linda Huibers, MD, PhD, Radboud University Nijmegen Medical Center, P.O. Box 9101, 6500 HB Nijmegen, The Netherlands (E-mail: L.Huibers@iq.umcn.nl).

condition, advised follow-up, or planned monitoring could result in a follow-up contact.[9,10] Patient experiences may also contribute to follow-up contacts, particularly if patient expectations were not met.[9,11–14] For instance, patients may wish to see a PCP and may be less satisfied if they do not get access to a PCP.[7,15–17]

Besides individual factors, organizational characteristics, particularly in relation to telephone triage, could affect follow-up contacts. The involvement of a supervising PCP at the call center (telephone PCP), computerized decision support systems, electronic patient records, and other organizational factors might influence the number of follow-up contacts.[3] Previous research showed that delays in answering calls or calling back and shorter consultations were associated with a more negative evaluation,[18] and the presence of a telephone PCP seemed to be related to a more positive evaluation of nurse telephone consultation.[8,19]

Better insight into determinants of follow-up contacts could provide guidance for decision makers in their efforts to improve the efficiency of out-of-hours care. This study aimed to identify whether patients' experiences with nurse telephone triage and organizational characteristics of PCP cooperatives were associated with the probability of follow-up contacts subsequent to contact at a PCP cooperative.

Method

Design and Population

We analyzed data from cross-sectional patient surveys conducted at PCP cooperatives between 2009 and 2011. Questionnaires were sent to a sample of 13,953 patients who had had a contact—either a telephone consultation, center consultation, or home visit—with one of 16 PCP cooperatives. Some of the cooperatives had satellite posts, which are extra consultation centers in the catchment area of a cooperative, to limit travel distances for patients. The 16 PCP cooperatives were spread over the Netherlands and represented a sample of the approximately 130 cooperatives. In total, Dutch PCP cooperatives had about 3.5 million contacts annually in the last five years.[20]

Procedure

For each PCP cooperative, 600 patient questionnaires were sent: 200 telephone consultations, 200 center consultations, and 200 home visits. In a few PCP cooperatives with satellite posts, these numbers were adjusted for practical reasons (eg, shared call center or budget issues). This equal distribution of questionnaires for each contact type does not reflect reality; the majority of contacts in cooperatives are consultations at the center, followed by telephone consultations and home visits (49%, 41%, and 10%, respectively).[20] Because we aimed to select contacts from one comparable time period, we adjusted the selection to the real distribution of contact types per PCP cooperative (eg, all home visits, every second telephone contact, and every third center consultation).

For data collection we used an adjusted Dillman method, which generally consists of 3 reminders.[21] We sent postal questionnaires within 2 to 10 days after the PCP cooperative contact, followed by 2 reminders. Because 3 cooperatives of one organization were part of a study of response rates, notifications were given to some patients before the survey was sent.[22] Deceased or terminally ill patients were excluded; other exclusion criteria were contacts that were kept confidential from patients' relatives, administrative contacts, questionnaires sent by mistake, nonconsent, and incomplete questionnaires. Walk-in patients were excluded because they did not have telephone contact with a nurse. All patients in our final dataset had telephone contact with a nurse, some of which were followed by a consultation at the center or a home visit.

Instrument and Measures

A written questionnaire was developed based on a standardized procedure, studying existing questionnaires and the literature, and the participation of groups of stakeholders and patients.[23,24] This questionnaire first was tested at 3 cooperatives for feasibility, internal validity, face validity, and reproducibility; it then was used to measure patients' experiences with quality of care at PCP cooperatives.[23] The questionnaire focused on patients' experiences with the telephone nurse, the PCP, and the organization of the PCP cooperative.[22] Patient experiences were measured using a 4-point scale.

We used 3 specific measures from the patient questionnaire. First, the outcome measure was patient-reported follow-up contact, concerning contacts with another health care provider for the same health problem without referral from the PCP cooperative. A first potential determinant was a measure of patient experiences with the telephone

nurse, which was the mean of scores on 7 items (ie, being polite, listening with attention, having enough time, taking the patient seriously, explaining comprehensibly, having trust in the nurse, and feeling helped by advice). A score was calculated if a minimum of 5 of 7items had valid answers (ie, 2 or fewer missing). A second potential determinant was patient-reported accessibility of the PCP cooperative, which comprised the reported number of attempts necessary to contact the PCP cooperative and the duration of time before the call was answered. Accessibility was evaluated as positive when only one attempt was necessary and a regular call was answered in <2 minutes or an emergency call was answered in <30 seconds. In addition, we included 12 measures that characterize PCP cooperatives, including size of the cooperative and organization of telephone triage. These potential determinants were indentified based on theoretical notions and experience and were discussed for validity. Accordingly, one contact person per participating PCP cooperative completed a short written questionnaire. These persons worked at the PCP cooperative organizations, mostly as managers.

Analysis

Frequency distributions were calculated for all measures and bivariate analyses were done to identify which potential determinants were significantly associated with the outcome measure. These significant bivariate associations were included in a logistic, multilevel (patients nested in PCP cooperative organizations) regression model to study the effect of patient experiences and PCP cooperative characteristics on follow-up contact. Model 1 included only patient characteristics; cooperative characteristics were added in model 2. We used SPSS software version 16.0 (SPSS, Inc., Chicago, IL) for descriptive statistics and MLwiN software version 2.02 (http://www.bristol.ac.uk/cmm/software/mlwin/) for logistic multilevel analysis.

Results

Patient and Cooperative Characteristics

A total of 7039 questionnaires were returned (response rate, 50.4%), with 5678 questionnaires available for analyses. The sample consisted of 40.6% consultations at a center, 31.1% telephone consultations, and 28.4% home visits (Table 1). The majority of respondents was female (58.6%).

Table 1. Patient and Primary Care Physician (PCP) Cooperative Characteristics

Characteristics	
Patients (n = 5678)*	
Male sex	2349 (41.4)
Age, years	
0–17	941 (16.6)
18–44	1642 (28.9)
45–64	1418 (25.0)
≥65	1677 (29.5)
Type of contact	
Telephone consultation	1764 (31.1)
Center consultation	2303 (40.6)
Home visit	1611 (28.4)
Cooperatives (n = 16)†	
Inhabitants (n)	281,882 (110,000–633,000)
PCP density (inhabitants/PCP)	2215 (1805–2683)
Distribution of contact type (%)	
Telephone consultation	40.8 (32.0–48.0)
Center consultation	48.7 (41.5–57.0)
Home visit	10.3 (6.0–15.0)
Distance to emergency department (km)	4.7 (0–22)
Triage nurse certification (%)	66.3 (0–100)
Use of computerized decision support system (%)	26.1 (0–100)
Telephone PCP present at call center (%)	56.2 (0–100)

*Values shown as n (%).
†Values in parentheses are minimum–maximum.

Most of patients were ≥65 years old (29.5%) or 18 to 44 years old (28.9%), whereas 16.6% of patients were 0 to 17 years of age.

The mean service area of a PCP cooperative included 281,882 inhabitants, with figures varying from 110,000 to 633,000 inhabitants. The distribution of contact types varied per cooperative, with a mean of 48.7% consultations at a center, 40.8% telephone consultations, and 10.3% home visits. The majority of triage nurses was certified (66.3%) after an obligatory education that was introduced recently. PCP cooperatives infrequently used a computerized decision support system (26.1%). A telephone PCP (ie, a PCP specifically tasked to supervise telephone triage during the shift) was (partly) present at a call center of 12 PCP cooperatives (56.2%).

Follow-up Contact and Patient Experiences

About half of patients had a follow-up contact subsequent to the cooperative contact (47.0%), mostly

Table 2. Patient Experiences and Follow-up Contact Per Type of Contact (n = 5678)

	Type of Contact			
	Telephone consultation (n = 1764)	Center consultation (n = 2303)	Home visit (n = 1611)	Total (n = 5678)
Telephone nurse*	3.66	3.73	3.71	3.70
Accessibility (% within standard)	80.8	84.3	86.6	83.9
Follow-up contact after contact with PCP cooperative (%)				
Own PCP/PCP cooperative	37.1	31.5	40.5	35.8
Emergency department	6.9	8.9	16.8	10.5
Ambulance care	0.7	0.2	1.3	0.7
Total	44.7	40.6	58.6	47.0

*Mean of 7 items, with scores ranging from 1 to 4. Mean score was included for patients with ≥5 valid answers.
PCP, primary care physician.

in primary care (35.8%; Table 2). Patients most frequently had a follow-up contact after a home visit (58.6%), but 44.7% of patients had a follow-up contact after a telephone contact (37.1% with primary care). Furthermore, the percentage of follow-up contacts varied from 42% to 55.7% per PCP cooperative (data not shown).

Patients positively evaluated the telephone nurses, with an average score of 3.70 of 4. Mean scores slightly varied for different contact types, with the lowest score for telephone consultations. On average, 83.9% of patients positively evaluated the accessibility of PCP cooperatives. Patients were more positive concerning accessibility when they had a consultation at a center or a home visit (84.3% and 86.6%, respectively).

Bivariate Analysis

Several patient-related determinants were found to be related to the probability of a follow-up contact after a PCP cooperative contact (Table 3). Patients were more likely to have a follow-up contact with increasing age (for patients ≥65 years old: odds ratio [OR], 2.88; 95% confidence interval [CI], 2.44–3.41). Patients with a more positive experience with the triage nurse had a lower probability of a follow-up contact (OR, 0.70; 95% CI, 0.63–0.78).

A number of PCP cooperative characteristics were significantly related to the probability of a follow-up contact. Patients who visited a satellite post were less likely to have a follow-up contact (OR, 0.81; 95% CI, 0.71–0.93). Furthermore, cooperatives with higher percentages of telephone consultations had a slightly higher probability of follow-up contacts (OR, 1.02; 95% CI, 1.01-1.03). The presence of a telephone PCP at the call center, the use of a computerized decision support system, the distance to the emergency department,

Table 3. Bivariate Analysis of Determinants of a Follow-up Contact

Determinants	Odds Ratio	95% Confidence Interval
Patient characteristics and experiences		
Age, years		
0–17 (reference)	1.00	
18–44	1.43*	1.20–1.69
45–64	2.13*	1.80–2.53
≥65	2.88*	2.44–3.41
Female sex	1.06	0.95–1.17
Accessibility	0.92	0.80–1.06
Experience with telephone nurse (range 1–4)	0.70*	0.63–0.78
Type of contact		
Telephone consultation (reference)		
Consultation at center	0.84	0.74–0.95
Home visit	1.74	1.51–1.99
PCP cooperative characteristics		
Satellite post	0.81*	0.71–0.93
Computerized decision support system	0.84	0.69–1.01
Frequency of telephone consultations (%)	1.02*	1.01–1.03
PCP at the call center	1.01	0.94–1.09
Certified triage nurses (%)	1.00	1.00–1.00
Distance to emergency department (km)	1.01	1.00–1.02

*Significant at $P < .05$.
PCP, primary care physician.

and the percentage of certified triage nurses were not related to the probability of a follow-up contact.

Multivariate Analysis

Table 4 presents 2 subsequent models for determining a follow-up contact: model 1 contains patient characteristics and accessibility, model 2 also contains cooperative characteristics. A number of bivariate associations remained significant in model 2: the probability of a follow-up contact was higher in older patients (OR, 2.39 for patients ≥65 years old; 95% CI, 1.99–2.88) and patients receiving a home visit (OR, 1.32; 95% CI, 1.13–1.54). In addition, patients contacting PCP cooperatives with a high percentage of telephone consultations had a higher probability of a follow-up contact (OR, 1.02; 95% CI, 1.00–1.03). The probability was lower among patients who more positively evaluated the telephone nurse (OR, 0.68; 95% CI, 0.61–0.76).

Finally, we included an interaction term of experience with the telephone nurse and type of contact (data not shown). The influence of experience with the telephone nurse is more important in the case of a telephone consultation than in case of a consultation at a center. Experience with a telephone nurse did not seem to be relevant to the probability of a follow-up contact among of patients who received a home visit. The effect of a negative experience is thus mainly due to patients with a telephone consultation.

Discussion

Summary of Main Findings

In this sample, about 50% of the patients had a follow-up contact within the first weeks after the out-of-hours contact with the PCP cooperative. Patients were more likely to have a follow-up contact if they were older, received a home visit, or contacted a cooperative that had a higher percentage of telephone consultations. They were less likely to have a follow-up contact if they more positively evaluated the telephone nurse. Specific changes in the working style at PCP cooperatives, in particular in the use of telephone triage, may thus contribute to a lowered number of follow-up contacts because these are determined in part by patient experiences with the service rather than with medically defined need.

Comparison With Existing Literature

The rate of follow-up contacts after contact with the cooperative falls within the range found by

Table 4. Multivariate Analysis of Determinants of a Follow-up Contact (Experiences Triage; n = 5678)

	Model 1 (Patient Characteristics & Accessibility)		Model 2 (Model 1 + PCP Cooperative Characteristics)	
Determinants	Odds Ratio	95% CI	Odds Ratio	95% CI
Patient characteristics and experiences				
Age, years				
0–17 (reference)	1.00		1.00	
18–44	1.32*	1.11–1.57	1.33*	1.12–1.58
45–64	1.91*	1.60–2.28	1.92*	1.61–2.29
≥65	2.39*	1.98–2.88	2.39*	1.99–2.88
Female sex	1.09	0.98–1.22	1.09	0.98–1.22
Accessibility	0.98	0.85–1.14	1.00	0.86–1.16
Experience with telephone nurse	0.68*	0.61–0.76	0.68*	0.61–0.76
Type of contact				
Telephone (reference)	1.00		1.00	
Consultation at center	0.91	0.80–1.04	0.92	0.80–1.04
Home visit	1.33*	1.14–1.55	1.32*	1.13–1.54
PCP cooperative characteristics				
Satellite post			0.90	0.77–1.04
Frequency of telephone consultations (%)			1.02*	1.00–1.03

*Significant at $P < .05$.
CI, confidence interval; PCP, primary care physician.

other studies.[8–10] Our results suggest that there are 3 factors related to the probability of a follow-up contact. First, older patients and patients who received a home visits are more likely to have a follow-up contact, which reflects the frequent occurrence of chronic illnesses, comorbidity, or urgent conditions in these groups.[9] Consequently, follow-up in these cases probably is appropriate from a medical viewpoint.

Second, negative experiences with a telephone nurse increase the probability of a follow-up contact, as we expected.[9,11,14] This implies that not all follow-up contacts are necessary from a medical perspective. Patient dissatisfaction might be related in part to the lack of knowledge about telephone triage.[25] In addition, we found that that experiences with a telephone nurse were less relevant to a follow-up contact when a patient had a subsequent consultation at a center; in the case of a home visit, experience with a telephone nurse did not predict a follow-up contact. In part this may be because patients with a face-to-face contact with a PCP have more severe health problems and a follow-up contact is necessary, regardless of the experience with the nurse. Furthermore, experiences with a PCP might overrule experiences with a telephone nurse.

Third, PCP cooperatives with a high percentage of telephone consultations also had a higher probability of follow-up contacts. Although these cooperatives seem to perform efficient telephone triage, the subsequent follow-up contacts increase workload. A relatively high percentage of telephone consultations might lead to more patients with unmet expectations since they expected to see a PCP.[7,15–17] Furthermore, at these cooperatives triage nurses might be more determined to end a contact by telephone and advise patients to contact their PCP later. In addition, the percentage of contacts that can be handled by nurse telephone consultation alone might be restricted because of the diagnostic scope presented.

Strengths and Limitations of the Study

We used a large dataset comprising patients from 16 different PCP cooperatives across the Netherlands. Patient characteristics of our sample seemed representative of the population contacting PCP cooperatives.[19] Data collection was performed recently, so we were able to provide up-to-date information on patient experiences. Dutch PCP cooperatives have existed for more than a decade, so triage nurses are more experienced, patients are familiar with the service, and the organization is implemented well. The response rate was 50.4%, which is similar to response rates in other studies of patient surveys in this health care sector.[9,17,19] A nonresponse analysis was done for a previous study that used part of our data, and this did not reveal any important differences with respondents.[22] Because our study is performed in a health care system with PCPs acting as gatekeepers, results should be interpreted and implemented with care when relating them to other health care systems.

Implications for Future Research and Clinical Practice

This study reemphasizes that patient contacts in PCP cooperatives are often part of a larger episode of care. A considerable number of patients had a follow-up contact subsequent to the cooperative contact. Although most follow-up contacts may be necessary,[10] other contacts may be avoidable if PCP cooperatives would show better performance concerning patient-centered care, in particular with regard to patient satisfaction and the number of telephone consultations. Future training of triage nurses should focus on communication skills to address patients' expectations and worries and patient education. Specific changes in the working style at cooperatives may thus contribute to a lowered number of follow-up contacts because these are determined in part by patients' experiences with the service rather than with medically defined need.

Measures to enhance efficiency could focus on improving patient experience with nurse telephone consultations, in particular for patients receiving only a telephone contact, because experiences with a telephone nurse seem to be no longer relevant when a patient has a face-to-face contact with a PCP. In fact, PCP cooperatives with a high percentage of telephone consultations had an increased probability of a follow-up contact. This finding should be studied in more detail to find possible explanations (eg, patient dissatisfaction, under-triage by nurses, high workload, balance). Whereas for some patients the need for a face-to-face contact or telephone advice is evident, triage decisions are more difficult for other patients. This subgroup might have more follow-up contacts after a telephone contact. In addition, future research should further investigate the effect of the appar-

ently efficient telephone triage on follow-up contacts and the potential shift of workload to daytime primary care. It might be more cost-efficient to handle contacts out-of-hours rather than referring patients to daytime care.

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