Please see your doctor in one to two weeks... or not: A retrospective cohort study of factors associated with attendance at primary care provider appointments post-discharge

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Abstract:	Background: Follow-up with a primary care practitioner (PCP) within 1-2 weeks of discharge has been associated with reduced readmissions. We sought to determine PCP appointment attendance post-discharge and identify factors associated with attendance. Methods: We conducted a retrospective cohort study (n=214) of general medicine patients discharged between Sept. 1, 2014 and Dec. 30, 2015 from two Ontario academic hospitals who were advised to see a PCP within 1 week. Attendance was determined by self-report during telephone follow-up. Multivariable logistic regression was used to assess whether patient factors (e.g. comorbidity) or system factors (e.g. booking prior to discharge) predicted attendance. Cox proportional hazards modeling was used to assess whether attendance predicted 30-day readmission. Results: Thirty five percent attended within 1 week of discharge and 52% within 2 weeks. After adjusting for age, sex and comorbidity, significant predictors of attendance were booking prior to discharge (OR 2.14, 95% CI=1.07-4.40; P=.035), PCP familiarity (OR 5.43, 95% CI=2.25-14.1; P<.001), and inclusion of a reminder, callback number and appointment time in the discharge summary (OR 15.3, 95% CI=2.09-326; P=.021). Predictors of non-attendance were the presence of a home support worker (OR 0.38, 95% CI=0.17-0.80; P=.012) and a booked specialist appointment prior to discharge (OR 0.37, 95% CI=0.18-0.73; P=.005). Attendance was not associated with reduced readmissions (HR 0.66, 95%

	CI=0.40-1.09; P=.11). Interpretation: Timely follow-up with PCPs post-discharge remains challenging. Efforts to improve attendance should focus on organizing and coordinating follow-up before discharge, particularly for those poorly connected with the healthcare system.

STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No	Recommendation
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract **Page 1**
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found **Page 2**
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported **Page 3**
Objectives	3	State specific objectives, including any prespecified hypotheses **Page 4**
Methods		
Study design	4	Present key elements of study design early in the paper **Page 5**
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection **Page 5**
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up **Page 5-6** *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed **N/A** *Case-control study*—For matched studies, give matching criteria and the number of controls per case
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable **Page 6**
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group **Page 6**
Bias	9	Describe any efforts to address potential sources of bias **Page 6**
Study size	10	Explain how the study size was arrived at **Page 5**
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why **Page 7**
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding **Page 7**
		(*b*) Describe any methods used to examine subgroups and interactions **N/A**
		(*c*) Explain how missing data were addressed **Page 6**
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed **Page 6** *Case-control study*—If applicable, explain how matching of cases and controls was addressed *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy

(*e*) Describe any sensitivity analyses **Page 6**

Continued on next page

Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed **Page 8**
		(b) Give reasons for non-participation at each stage **Page 19**
		(c) Consider use of a flow diagram **Page 19**
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders **Page 20**
		(b) Indicate number of participants with missing data for each variable of interest **N/A**
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount) **Page 8**
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time **Page 8**
		Case-control study—Report numbers in each exposure category, or summary measures of exposure
		Cross-sectional study—Report numbers of outcome events or summary measures
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included **Page 8**
		(*b*) Report category boundaries when continuous variables were categorized **N/A**
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period **N/A**
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses **Page 9**
Discussion		
Key results	18	Summarise key results with reference to study objectives **Page 11**
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias **Page 13**
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence **Page 14**
Generalisability	21	Discuss the generalisability (external validity) of the study results **Page 14**
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based **N/A**

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Word count: 2424 (target 2500)

ABSTRACT

Background: Follow-up with a primary care practitioner (PCP) within 1-2 weeks of discharge has been associated with reduced readmissions. We sought to determine PCP appointment attendance post-discharge and identify factors associated with attendance.

Methods: We conducted a retrospective cohort study (n=214) of general medicine patients discharged between Sept. 1, 2014 and Dec. 30, 2015 from two Ontario academic hospitals who were advised to see a PCP within 1 week. Attendance was determined by self-report during telephone follow-up. Multivariable logistic regression was used to assess whether patient factors (e.g. comorbidity) or system factors (e.g. booking prior to discharge) predicted attendance. Cox proportional hazards modeling was used to assess whether attendance predicted 30-day readmission.

Results: Thirty five percent attended within 1 week of discharge and 52% within 2 weeks. After adjusting for age, sex and comorbidity, significant predictors of attendance were booking prior to discharge (OR 2.14, 95% CI=1.07-4.40; *P*=.035), PCP familiarity (OR 5.43, 95% CI=2.25-14.1; *P*<.001), and inclusion of a reminder, callback number and appointment time in the discharge summary (OR 15.3, 95% CI=2.09-326; *P*=.021). Predictors of non-attendance were the presence of a home support worker (OR 0.38, 95% CI=0.17-0.80; *P*=.012) and a booked specialist appointment prior to discharge (OR 0.37, 95% CI=0.18-0.73; *P*=.005). Attendance was not associated with reduced readmissions (HR 0.66, 95% CI=0.40-1.09; *P*=.11).

Conclusion: Timely follow-up with PCPs post-discharge remains challenging. Efforts to improve attendance should focus on organizing and coordinating follow-up before discharge, particularly for those poorly connected with the healthcare system.

Abstract word count: 245 (target ~250)

BACKGROUND

With pressure to discharge patients sooner(1,2), coordinating prompt follow-up with primary care providers (PCPs) after discharge has become essential to ensure continuity of care and a safe transition. While controversy remains over whether prompt primary care follow-up is of benefit to all medical patients(3-6), some studies have found prompt follow-up helpful in reducing emergency department (ED) visits and readmissions(7-9) among patients with chronic conditions such as congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), non ST elevation myocardial infarction (NSTEMI) and cancer(10-13). Several provincial and national organizations therefore recommend follow-up within one to two weeks of hospital discharge as a measure of health care quality(14-17) and local initiatives, interventions, and incentive structures in both Canada and the US have been developed to improve the discharge and follow-up process to meet these quality standards(18-22).

Despite recommendations and attempts to improve attendance, prompt follow-up within one to two weeks of discharge remains a challenge. In Canada, 1 week follow-up rates vary between 32 and 56% depending on clinical condition and region (15,22). National Medicare claims data suggest rates are similar in the US(23). Several contributory factors have been postulated. Patients self-report forgetfulness, miscommunication and logistical barriers(24-26). Studies have shown age, socioeconomic status and rural residence produce inequities in access to primary care (4,15,23,27). Attendance is likely dependent on a combination of predisposing patient factors (clinical and functional) and

enabling system resources such as ease of booking and transportation(28), but few studies have looked comprehensively at how these factors may contribute to attendance at appointments after discharge. Better evidence is needed to inform quality improvement projects on transitional care.

The objective of our study was therefore to determine self-reported attendance rates with PCPs following discharge and to identify patient and system factors associated with attendance among hospitalized medicine patients.

METHODS

We conducted a retrospective cohort study on patients discharged from the general medicine ward of two academic hospitals (457 and 280 beds) in Toronto, Ontario between September 2014 and December 2015. All study participants were seen in hospital by a transitional care specialist (TCS) prior to discharge and were advised to see their PCP within 7 days of discharge. The TCS received referrals from any healthcare professional attending on the hospital unit for patients felt to be at high risk of readmission, and their responsibilities included ensuring access to a PCP if the patient did not already have one, delivery of home support services, transmission of the discharge summary to the PCP, and educating the patient about the discharge plan. They followed up with patients via telephone within 14 days after discharge to record PCP attendance.

We excluded patients who died in hospital, left against medical advice, had no contact information or refused follow-up, were discharged to another care facility, or deemed at end of life. We also excluded patients who were enrolled in other transitional care initiatives, such as home visits, that might have impacted adherence to follow-up. For patients admitted multiple times during the study period, only the first admission was included.

DATA SOURCES:

We reviewed the electronic health record for baseline characteristics including age, sex, presence of language barrier, and discharge diagnosis. We assessed comorbidity using diagnoses listed in the discharge summary to calculate a Charlson Comorbidity Index (29).

We included other characteristics that may have impacted baseline health-care access and utilization such as length of stay and emergency room visits in the past 6 months. A priori, factors that had previously been found to impact attendance and those hypothesized to were included. We recorded presence of psychiatric comorbidity, substance use disorders, cognitive impairment (diagnosed with dementia or documented cognitive testing), mobility impairment (use of cane, walker or wheelchair), social isolation (living alone and without inpatient visitors), and discharge home with support services.

We also included system related variables that may have impacted attendance. These included whether the PCP appointment was booked prior to discharge, whether the TCS helped with booking the appointment, the time to follow-up appointment, and whether discharge occurred on a weekend (Saturday or Sunday). We documented PCP familiarity based on self-report, and whether the patient requested a new PCP. We also noted if a specialist appointment was booked prior to discharge. Lastly, we recorded whether the discharge summary provided appointment details such as appointment time and a phone number to call should questions arise.

OUTCOMES

Attendance at PCP appointment was based on self-report, as recorded by the TCS during follow-up calls, and classified as attended, not attended, or unknown. We considered missed and rescheduled appointments as not attended, and, where available in the TCS notes, recorded the reason for no show. Patients for whom follow-up appointment attendance was unknown (n = 86) were excluded from the analyses. We recorded

readmissions or ED visits to either hospital within 30 days following discharge. ED visits and readmissions to other hospitals were not available to be included.

STATISTICAL ANALYSES

We compared all baseline characteristics between attendees and non-attendees using chi-squared and t tests. We used stepwise multivariable logistic regression to identify independent predictors of attendance with the PCP. We chose the most parsimonious model based on a bi-directional step AIC modeling procedure, and further included age, sex, and comorbidity to produce our final model. For each variable in the final model, we report the odds ratio of attendance with 95% confidence interval, as well as the two-tailed Wald test p-value against the null hypothesis that the true OR equals 1. We assessed multicollinearity using variance inflation factors using a threshold value of 2 as evidence of meaningful correlation. Sensitivity analyses were performed by assigning patients with unknown outcome to either attended or not and repeating the above analyses. Cox proportional hazards modeling was used to assess the association between nonattendance and the risk of readmission, adjusted for age, sex, length of stay, comorbidity and previous ED visits. In all analyses, we used alpha = .05 as the threshold for statistical significance. Analyses were performed using R version 3.3.2 (The R Foundation for Statistical Computing).

Ethics approval was obtained from the institutional review board of University Health Network in Toronto, Ontario.

RESULTS

Of 552 patients admitted to general internal medicine and seen by the TCS, 300 met inclusion criteria. Eighty-six patients (29%) had unknown attendance and were excluded for a final study population of 214 patients (Figure 1).

Baseline characteristics of the study population are provided (Table 1). The median age was 72.5 years and 57% were male. The most common discharge diagnoses were acute decompensated heart failure (19%), community acquired pneumonia (8.7%), and acute exacerbations of COPD (7.5%). The TCS called patients for up to an average of 11.5 ± 8.5 days and median of 10 days post-discharge. A total of 168 primary care appointments were scheduled for an average of 7.3 ± 5.3 days after discharge. Only 90 patients (42%) received a follow-up appointment for within 7 days. There were no significant differences in patient characteristics between patients who attended and did not attend their appointment with their PCP.

One hundred and twenty four patients (58%) attended their appointment, 75 (35%) within the first week of discharge and 112 (52%) within 2 weeks. In our final model, only system-related factors were associated with attendance. Having an appointment booked prior to discharge (OR 2.14, 95% CI = 1.07-4.40; *P*=.035), a familiar PCP (OR 5.43, 95% CI = 2.25-14.1; *P*<.001) and a discharge summary containing a reminder, appointment time and callback number (OR 15.3, 95% CI = 2.09-326; *P*=.021) were positively correlated with attendance, whereas the presence of a home support worker (OR 0.38, 95% CI = 0.17-0.80;

P=.012) and having a specialist appointment booked prior to discharge (OR 0.37, 95% CI = 0.18-0.73; *P*=.005) were negatively associated with attendance (Table 2). Variance inflation factors for all variables in the final model were under 2 (Supplementary Table S1). For the 90 patients who did not attend their appointment, one or more reasons for non-attendance were available for 78 (86%) of them. The reasons given ranged from patient-related factors such as feeling an appointment was not necessary (28%), forgetting to book or attend (17%), scheduling conflicts (12%), being readmitted at time of appointment (10%), or feeling unwell (4%) versus system-related factors such as transportation difficulties due to weather or otherwise (21%) and physician unavailability (10%).

A total of 66 patients (31%) were readmitted within 30-days. For these 66 patients, time to readmission was an average of 12.8 ± 8.0 and median 12 days after discharge. After adjusting for age, sex, length of stay, comorbidity and recent ED visits, the hazard ratio of readmission within 30 days was not significantly lower for patients who attended their primary care appointment (HR 0.66, 95% CI = 0.40-1.09; *P*=.11), though trended towards reduced readmissions (Figure 2 and Table 3).

SENSITIVITY ANALYSES

Patients with unknown attendance (n = 86) (Supplementary Table S2) had more ED visits in the past 6 months (1.7 vs. 1.0, *P*=.03), were more likely to have cognitive impairment, psychiatric comorbidity or a use disorder (56 vs. 43%, *P*=.044), were less likely to have had their PCP appointment booked prior to discharge (29 vs. 51%, *P*=.001) and their discharge summaries were less likely to contain a follow-up appointment time

(10 vs. 31%, *P*<.001). When patients with unknown attendance were considered as having not attended their appointment, presence of home support worker was no longer an independent predictor of attendance. When patients with unknown attendance were considered as having attended, booking prior to discharge was no longer predictive of attendance. PCP familiarity, having a specialist appointment booked prior to discharge, and providing an appointment reminder with callback number and time retained statistical significance in both sensitivity analyses (Supplementary Table S3).

CONCLUSIONS AND RELEVANCE

Achieving prompt follow-up after discharge continued to be a significant challenge for our cohort of general medicine patients. Only 35 percent of our patients attended their PCP appointment within one week of discharge, and only 52 percent within two weeks. After adjusting for baseline demographic differences, attendance was positively associated with having an appointment booked prior to discharge, self-reported PCP familiarity and written reminder provided on the discharge summary, and was negatively associated with the presence of a booked specialist appointment at discharge and the presence of a home support worker. There was a trend towards reduced readmissions for those who attended their primary care follow-up appointment, but this did not reach statistical significance. These findings suggest specific system changes may improve rates of prompt follow-up with PCPs.

Despite assistance from the TCS, the follow-up rate for our cohort was similar to provincial and national averages. Recent data from Ontario show a 7-day follow-up rate with any doctor of 35.8% for patients with COPD and 45.8% for patients with heart failure(22). In Alberta and Saskatchewan, the follow-up rate was 32-37% for all medical and surgical discharges(15). In the US, a study of 3 661 elderly patients discharged from a general medicine ward reported a 7-day follow-up rate of 27.3%(4). Studies of national Medicare data report 7-day follow-up rates of just under 40% for all patients with heart failure(10,23). Appointment availability continues to be a major obstacle in making prompt

attendance possible. Only 90 (42%) of patients received an appointment within 1 week, and most (83%) who received an early appointment attended.

Previous models have suggested that attendance is a complex behaviour dictated by multiple interacting components such as patient's health, perceived need, reminders, and enabling resources(28). This is supported by other studies, which have found a wide variety of factors associated with lower rates of follow-up after discharge: younger age, longer length of stay, surgery, low income neighbourhood, rural residence, discharge home with support services, discharge from a community hospital, lack of PCP familiarity, Black or Hispanic race, Medicare and Medicaid insurance(4,7,15,23). We similarly found that discharge home with support services and lack of PCP familiarity were associated with lower rates of follow-up, though in our study, age and length of stay were not. Instead, having a specialist appointment booked prior to discharge was, and this may be due to patients disinterest in seeing their PCP given an alternative appointment. A similar pattern was previously observed in a study of discharges from a neurosurgical ward, where patients referred elsewhere were less likely to attend a follow-up neuropsychiatric appointment(30) and our patients reported a lack of necessity as the main reason for non-attendance. Booking the appointment prior to discharge and including a written reminder with time and callback number was associated with higher rates of follow-up. There is supporting causal evidence from a randomized trial that booking itself increases follow-up rates by 22 percent(31), and a before-after study found that improving the information given to patients before appointments improved attendance(26).

Our study has several limitations. Our small sample size may have hindered detection of an association between attendance and patient level factors found in other studies. Referral criteria to the transitional care specialist were subjective and we excluded patients receiving home visits and other transitional interventions, which may have underestimated our attendance rate. The inherently dynamic role of transitional care specialist also makes comparisons between our sites and others challenging. Our outcome was based on self-report rather than objective evidence of attendance. We classified rescheduled appointments as missed, though in practice, rescheduled appointments may be a tolerable outcome provided the appointment can be rescheduled in the near future. Lastly, our short duration of follow-up meant we had a large proportion (29%) of patients with uncertain outcome who were excluded from our analyses, mostly due to appointments being scheduled beyond the final call by the TCS. We conducted sensitivity analyses to explore how this unknown cohort could affect our results and found that PCP familiarity, specialist booking prior to discharge and providing an appointment reminder with callback number and time continued to be significant factors influencing attendance.

In conclusion, rates of prompt follow-up, even with transitional care assistance, are falling short of provincial and national recommendations. Our study suggests that the practice of discharging patients at increased risk for readmission should be considered with caution, particularly for patients with sufficient functional impairment to require support services and those without a stable primary care physician. Alternative arrangements, such as home visits or dedicated post-discharge follow-up clinics should be

considered for these patients. Increased ease in scheduling prompt appointments prior to discharge through open appointment scheduling or drop-in hours for example has the promise to improve follow-up rates. Finally, as we move towards more patient-centred care, greater efforts should be made to consolidate and coordinate appointments between PCPs and specialists to minimize unnecessary visits and missed appointments.

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FIGURES

Figure 1: Inclusion/exclusion criteria

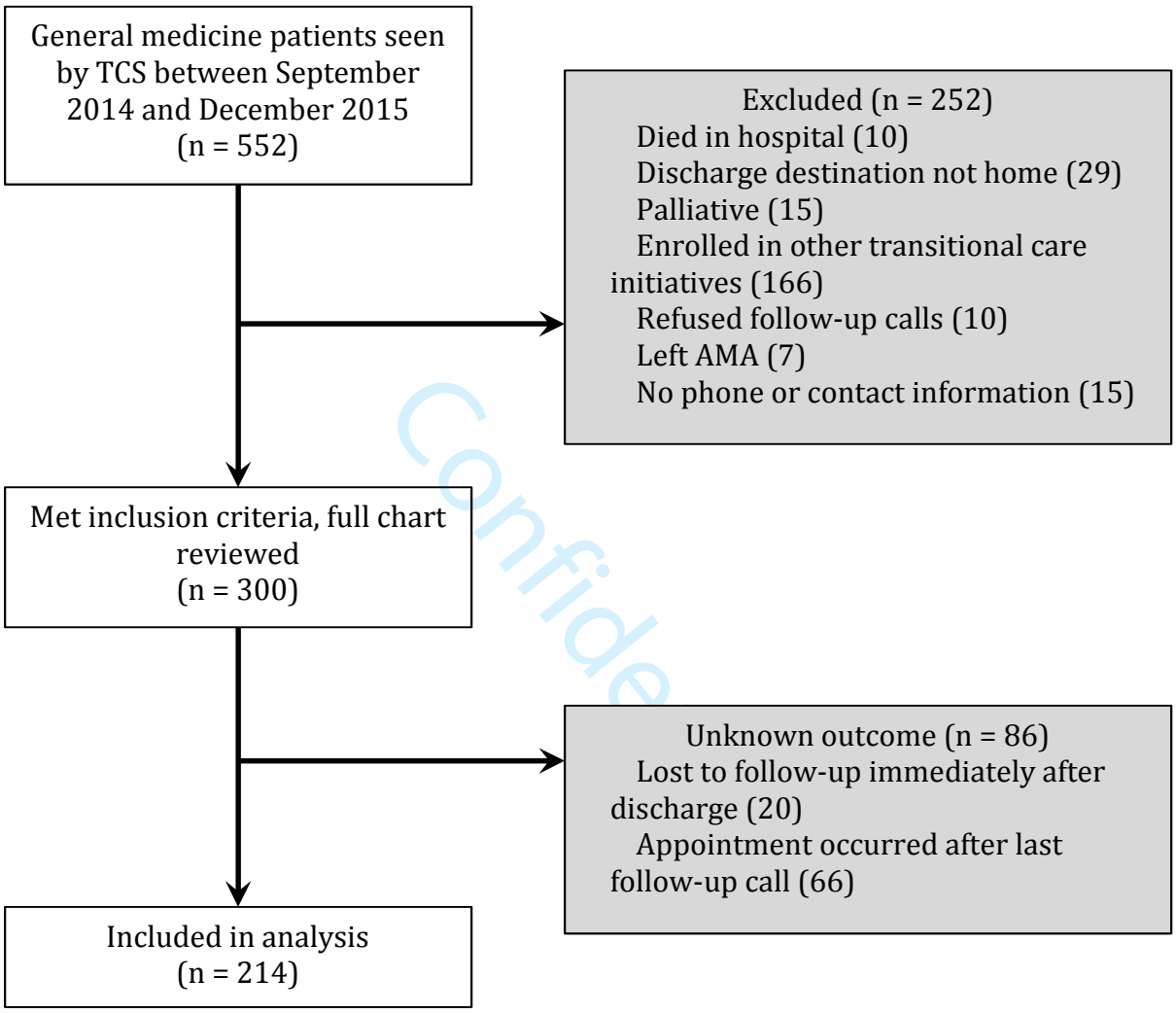


Table 1: Baseline characteristics of all patients who attended and who did not attend their primary care appointments (n=214)

		Attendance at PCP appointment			
	All patients n = 214	**No** ***n = 90 (42%)***	**Yes** ***n = 124 (58%)***	**Unadjusted OR (95% CI)**	**p-value**
Patient characteristics					
Age, yr, mean ± SD	70 ± 16	68 ± 18	71 ± 15	1.01 (0.99-1.03)	.32
Male sex	122 (57)	47 (52)	75 (60)	1.40 (0.81-2.42)	.23
Discharge diagnosis					
CHF	40 (19)	20 (22)	20 (16)	0.67 (0.34-1.34)	.26
CAP	18 (8.4)	8 (8.9)	10 (8.1)	0.90 (0.34-2.38)	.83
COPD	16 (7.5)	4 (4.4)	12 (9.7)	2.30 (0.72-7.39)	.16
Charlson Comorbidity index, mean ± SD	2.6 ± 2.0	2.5 ± 2.0	2.7 ± 2.0	1.04 (0.91-1.19)	.54
Length of stay, d, mean ± SD (median)	8.6 ± 9.4 (6)	9.4 ± 9.6 (6)	8.0 ± 9.2 (5)	0.98 (0.96-1.01)	.28
ED visits in past 6 months, mean ± SD	1.0 ± 1.9	1.3 ± 2.4	0.9 ± 1.4	0.89 (0.77-1.04)	.13
Cognitively impaired or psychiatric diagnosis	92 (43)	43 (48)	49 (40)	0.71 (0.41-1.24)	.23
Language barrier	83 (39)	37 (41)	46 (37)	0.84 (0.48-1.47)	.55
Socially isolated	24 (11)	7 (7.8)	17 (14)	1.88 (0.75-4.75)	.18
Impaired mobility	100 (47)	46 (51)	54 (44)	0.74 (0.43-1.27)	.27
Presence of home support worker	134 (63)	62 (69)	72 (58)	0.63 (0.35-1.11)	.11
System-related characteristics					
PCP appointment booked prior to discharge	109 (51)	36 (40)	73 (59)	2.15 (1.24-3.73)	.007
Received booking help from TCS	105 (51)	38 (42)	68 (55)	1.61 (0.93-2.78)	.089
Familiar PCP	166 (78)	62 (69)	104 (84)	2.35 (1.22-4.52)	.011
Requested a new PCP	58 (27)	25 (28)	33 (27)	0.94 (0.51-1.73)	.85
Specialist appointment booked prior to discharge	61 (29)	36 (40)	25 (12)	0.38 (0.21-0.70)	.002

		Attendance at PCP appointment			
	All patients n = 214	**No** ***n = 90 (42%)***	**Yes** ***n = 124 (58%)***	**Unadjusted OR (95% CI)**	**p-value**
Weekend discharge	26 (12)	10 (11)	16 (13)	1.19 (0.51-2.75)	.69
Provided no instructions regarding PCP follow-up	42 (19)	21 (23)	21 (17)	0.67 (0.34-1.32)	.25
Recommended PCP follow-up only	111 (52)	47 (52)	64 (52)	0.98 (0.57-1.68)	.93
Recommended PCP follow-up and provided time but no callback number	41 (19)	17 (19)	24 (19)	1.03 (0.52-2.06)	.93
Recommended PCP follow-up and provided callback number but no appointment time	8 (3.7)	4 (4.4)	4 (3.2)	0.72 (0.17-2.95)	.64
Recommended PCP follow-up and provided both callback number and time	12 (5.6)	1 (1.1)	11 (8.8)	8.66 (1.1-68.32)	.04

PCP = primary care physician
CHF = congestive heart failure, CAP = community acquired pneumonia, COPD = chronic obstructive pulmonary disease

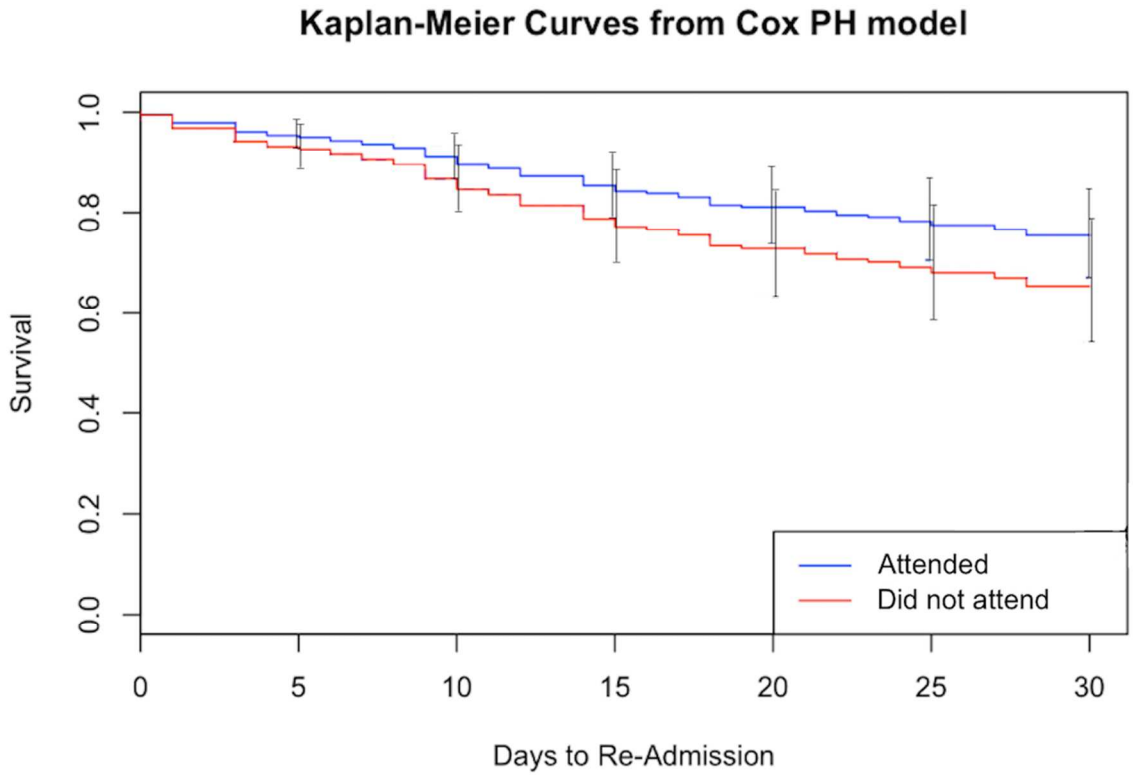
Table 2: Odds ratios for characteristics included in best fit model[a], adjusted for age, sex and Charlson Comorbidity Index

	Unadjusted OR (95% CI)	**Unadjusted p-value**	**Adjusted OR (95% CI)**	**Adjusted p-value**
Age			1.01 (0.98-1.03)	.63
Male sex			1.20 (0.62-2.33)	.58
Charlson Comorbidity Index			1.07 (0.91-1.26)	.44
Presence of home support worker	0.41 (0.20-0.82)	.013	0.38 (0.17-0.80)	.012
PCP appointment booked prior to discharge	2.15 (1.08-4.39)	.031	2.14 (1.07-4.40)	.035
Familiar PCP	6.1 (2.62-15.3)	<.001	5.43 (2.25-14.1)	<.001
Specialist appointment booked prior to discharge	0.36 (0.18-0.71)	.003	0.37 (0.18-0.73)	.005
Discharge summary:				
Recommended PCP follow-up only[b]	0.98 (0.44-2.17)	.96	1.00 (0.44-2.25)	1.00
Recommended PCP follow-up and provided time but no callback number[b]	0.77 (0.26-2.22)	.63	0.79 (0.27-2.28)	.66
Recommended PCP follow-up and provided callback number but no appointment time[b]	1.04 (0.18-5.88)	.96	0.97 (0.17-5.53)	.98
Recommended PCP follow-up and provided both callback number and time[b]	15.3 (2.08-324)	.021	15.3 (2.09-326)	.021

[a] mixed stepwise regression based on AIC

[b] Reference group is discharge summary provided no instructions regarding PCP follow-up

Figure 2: Kaplan-Meier curves for time to readmission for patients by attendance at PCP appointment[a]



Days to re-admission	0	5	10	15	20	25	30
Number at risk	214	201	188	173	162	155	148

[a] adjusted for age, sex, CCI, LOS, and ED visits in past 6 months
Error bars indicate 95% confidence interval

Table 3: Hazard ratios from Cox proportional hazards model for readmission for patients by attendance

	Hazard ratio	p-value
Attended PCP appointment	0.66 (0.40-1.09)	.11
Age	1.00 (0.76-1.31)	.96
Male sex	0.92 (0.54-1.56)	.76
Length of stay	1.04 (0.83-1.31)	.72
Charlson Comorbidity Index	1.01 (0.79-1.30)	.93
ED visits in past 6 months	1.30 (1.08-1.56)	.005

APPENDIX

Table S1: Variance inflation factors for final model

	Variance inflation factor
Age	1.53
Male sex	1.19
Charlson Comorbidity Index	1.22
Presence of home support worker	1.42
PCP appointment booked prior to discharge	1.37
Familiar PCP	1.44
Specialist appointment booked prior to discharge	1.12
Discharge summary reminder	1.62

Table S2: Comparison of excluded patients with study population

Characteristic	Included patients n = 214	Unknown *n = 86*	p-value
Patient characteristics			
Age, yr, mean ± SD	70 ± 16	70 ± 17	.88
Male sex	122 (57)	52 (60)	.58
Discharge diagnosis			
CHF	40 (19)	18 (21)	.66
CAP	18 (8.4)	2 (2.3)	.056
COPD	16 (7.5)	11 (13)	.15
Charlson Comorbidity index, mean ± SD	2.6 ± 2.0	2.7 ± 2.0	.91
Length of stay, d, mean ± SD (median)	8.6 ± 9.4 (6)	6.9 ± 5.1 (5.5)	.12
ED visits in past 6 months, mean ± SD	1.0 ± 1.9	1.7 ± 2.6	.029*
Cognitively impaired or psychiatric diagnosis	92 (43)	48 (56)	.044*
Language barrier	83 (39)	33 (38)	.95
Socially isolated	24 (11)	11 (13)	.70
Impaired mobility	100 (47)	35 (41)	.34
Presence of home support worker	134 (63)	54 (63)	.98
PCP follow-up characteristics			
PCP appointment booked prior to discharge	109 (51)	25 (29)	.001*
Received booking help from TCS	109 (51)	46 (53)	.69
Familiar PCP	166 (78)	71 (83)	.34
Requested a new PCP	58 (27)	20 (23)	.49
Specialist appointment booked prior to discharge	61 (41)	25 (41)	.97
Weekend discharge	26 (12)	5 (5.8)	.10
Discharge summary:			
Did not recommend PCP follow-up	42 (20)	17 (20)	.98
Recommended PCP follow-up only	111 (52)	57 (66)	.024*
Recommended PCP follow-up and provided time but no callback number	41 (19)	5 (5.8)	.003*
Recommended PCP follow-up and provided callback number but no appointment time	8 (3.7)	4 (4.7)	.43
Recommended PCP follow-up and provided both callback number and time	12 (5.6)	3 (3.5)	.45

Table S3: Sensitivity analyses, adjusted odds ratios of resulting best fit models[a] for patients with unknown attendance as attended and non-attended

	Included patients only		Unknowns as not attended		Unknowns as attended	
	OR (95% CI)	**p-value**	**OR (95% CI)**	**p-value**	**OR (95% CI)**	**p-value**
Age	1.00 (0.98-1.03)	.74	1.01 (0.99-1.02)	.60	1.00 (0.98-1.02)	.74
Male sex	1.15 (0.59-2.24)	.69	0.97 (0.55-1.68)	.87	1.37 (0.77-2.42)	.28
Charlson Comorbidity Index	1.07 (0.90-1.26)	.45	1.05 (0.91-1.21)	.44	1.03 (0.90-1.19)	.67
ED visits in past 6 months			0.85 (0.73-0.97)	.020*		
Discharge diagnosis: CHF			0.53 (0.25-1.08)	.074		
Discharge diagnosis: COPD					2.35 (0.83-8.47)	.14
Cognitively impaired or psychiatric diagnosis			0.58 (0.34-1.00)	.057		
Socially isolated					2.09 (0.86-5.74)	.12
Presence of home support worker	0.38 (0.17-0.80)	.014*	0.57 (0.30-1.04)	.081	0.52 (0.27-0.97)	.045*
PCP appointment booked prior to discharge	2.15 (1.07-4.41)	.034*	3.59 (1.73-7.74)	<.001*		
Received booking help from TCS			0.52 (0.24-1.08)	.095		
Familiar PCP	5.6 (2.32-15.0)	<.001*	6.84 (2.31-22.3)	<.001*	7.64 (2.67-25.9)	<.001*
Requested a new PCP			2.28 (0.91-6.02)	.088	2.32 (0.87-7.41)	.12

	Included patients only		Unknowns as not attended		Unknowns as attended	
	OR (95% CI)	**p-value**	**OR (95% CI)**	**p-value**	**OR (95% CI)**	**p-value**
Specialist appointment booked prior to discharge	0.37 (0.18-0.75)	.006*	0.41 (0.22-0.77)	.007*	0.49 (0.27-0.89)	.020*
Recommended PCP follow-up only[b]	1.00 (0.44-2.25)	1.00	0.70 (0.34-1.43))	.32	1.02 (0.49-2.07)	.95
Recommended PCP follow-up and provided time but no callback number[b]	0.79 (0.27-2.28)	.66	1.11 (0.42-2.96)	.90	0.68 (0.28-1.64)	.85
Recommended PCP follow-up and provided callback number but no appointment time[b]	0.97 (0.17-5.53)	.98	1.10 (0.23-4.71)	.83	1.14 (0.29-5.10)	.39
Recommended PCP follow-up and provided both callback number and time[b]	15.3 (2.09-326)	.021*	5.96 (1.40-29.8)	.020*	9.32 (1.47-185)	.047*

* $p < 0.05$

[a] mixed stepwise regression based on AIC

[b] Reference group is discharge summary provided no instructions regarding PCP follow-up

Shaded cells indicate the variable was dropped during stepwise regression