

# Reasons for readmission in an underserved high-risk population: a qualitative analysis of a series of inpatient interviews

Theodore Long,<sup>1,2</sup> Inginia Genao,<sup>3</sup> Leora I Horwitz<sup>3,4</sup>

**To cite:** Long T, Genao I, Horwitz LI. Reasons for readmission in an underserved high-risk population: a qualitative analysis of a series of inpatient interviews. *BMJ Open* 2013;**3**:e003212. doi:10.1136/bmjopen-2013-003212

► Prepublication history for this paper is available online. To view these files please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2013-003212>).

*Prior presentations:* An earlier version of this work was presented as an oral presentation at the Society of General Internal Medicine Annual Meeting in Orlando, Florida on 12 May 2012.

Received 13 May 2013  
Revised 11 August 2013  
Accepted 12 August 2013

For numbered affiliations see end of article.

## Correspondence to

Dr Theodore Long;  
[theodore.long@yale.edu](mailto:theodore.long@yale.edu)

## ABSTRACT

**Objective:** To gather qualitative data to elucidate the reasons for readmissions in a high-risk population of underserved patients.

**Design:** We created an instrument with 27 open-ended questions based on current interventions.

**Setting:** Yale-New Haven Hospital.

**Patients:** Patients at the Yale Adult Primary Care Center (PCC).

**Measurements:** We conducted semi-structured qualitative interviews of patients who had four or more admissions in the previous 6 months and were currently readmitted to the hospital.

**Results:** We completed 17 interviews and identified themes relating to risk of readmission. We found that patients went directly to the emergency department (ED) when they experienced a change in health status without contacting their primary provider. Reasons for this included poor telephone or urgent care access and the belief that the PCC could not treat acute illness. Many patients could not name their primary provider. Conversely, every patient except one reported being able to obtain medications without undue financial burden, and every patient reported receiving adequate home care services.

**Conclusions:** These high-risk patients were receiving the formal services that they needed, but were making the decision to go to the ED because of inadequate access to care and fragmented primary care relationships. Formal transitional care services are unlikely to be adequate in reducing readmissions without also addressing primary care access and continuity.

## INTRODUCTION

Hospital readmissions represent a significant cost to the healthcare system and are a burden to patients. Nationally, 19.6% of Medicare beneficiaries discharged from the hospital are readmitted within 30 days and 34.0% are readmitted within 90 days.<sup>1</sup> Many attempts have been made to identify and address the issues leading to readmission.

## ARTICLE SUMMARY

### Strengths and limitations of this study

- Limitations include this being a single site study with a focus on patients at the highest risk of readmission; thus findings may not be comparable to other populations.
- Strengths include elucidating the perspectives of an underrepresented population of patients and defining key areas for intervention in this population.

However, no single strategy has been found to reproducibly reduce readmissions.<sup>2</sup> Most studies evaluating this problem have focused on chart review and administrative data, but there is a paucity of qualitative information from the perspectives of patients.<sup>3</sup> It has been unclear what happens to patients once they are discharged from the hospital, and whether their healthcare outside the hospital could be improved in order to prevent hospital readmissions.

This study examined the patient experiences after hospital discharge by conducting qualitative interviews of high-risk patients during readmission. We studied the urban underserved population of patients at Yale-New Haven Hospital (YNHH) with the highest incidence of readmission. We chose to assess this population because the urban underserved comprise a disproportionate share of readmissions at many academic medical centres.<sup>4-7</sup> Furthermore, patients with low socioeconomic status have been shown to have a distinctly challenging experience transitioning from inpatient admission to home.<sup>8-10</sup>

We sought to understand the perspectives of underserved patients at the highest risk of readmission in order to determine how future interventions could be more effective for this population. We examined their

transition of care from the hospital to home, focusing on how they interacted with the health system once they left the hospital and what factors drove them to be readmitted so frequently.

## METHODS

### Setting

We focused our study on the underserved population at YNHH, a 966 bed urban academic medical centre. We interviewed patients cared for at the Yale Adult Primary Care Center (PCC), which is a hospital-based clinic serving primarily the low-income residents of New Haven. The PCC is staffed by internal medicine residents who are typically present for one half day per week as well as part and full time attending providers. Residents are assigned to the PCC for their entire 3 years of training.

### Study cohort

Our study population was comprised of PCC patients with four or more admissions in the past 6 months, which is one of YNHH's criteria for high risk. At the time of this study, less than 150 patients at YNHH met this high-risk criterion, and of these 25% were PCC patients. We arranged for our medical record system to send a daily email listing all patients designated as high-risk currently admitted at YNHH. The criteria for this designation are either four or more admissions in the past 6 months or a diagnosis of heart failure. From the daily list, we identified patients who had four or more admissions in the past 6 months and who had an established primary care provider in the PCC as well as at least two completed clinic notes from the prior 12 months. We set out the requirement for at least two clinic notes to ensure that enrolled patients were actively followed by the PCC. We then restricted this group to patients who were currently readmitted within 30 days of their last date of discharge from YNHH. All interviews were conducted inpatient during the patients' readmission stays. We completed the study from October 2011 to April 2012. Interviews were completed on both weekdays and weekends. Twenty-one eligible patients were approached during the study period, and four declined.

### Design

We created an instrument with 27 open-ended questions based on areas targeted by current interventions as well as other qualitative studies looking at readmissions.<sup>3 11</sup> Given that most interventions are focused on supporting the patient in the post-discharge period, we focused our study on understanding the patient experience of several key support domains: social/emotional support (from friends, family and clinicians), instrumental health system support (medications, transportation, access to outpatient care) and informational support (knowledge and self-efficacy).<sup>12</sup> We then conducted pilot interviews and solicited feedback about the

interview questions from patients. The instrument was revised based on this feedback. We also extensively reviewed the first complete interview transcription, and further revised the instrument based on this feedback as well. The final questions in the instrument included the areas of transportation, support systems, medications, formal services, health literacy, access to care, relationship with providers, communication with providers and transitions of care (see Appendix 1 for list of questions). For questions asking for an affirmative/negative or numerical response, we used a strategy of planned prompts and probes to extend the narrative. We also included screening for depression via the Patient Health Questionnaire-2 (PHQ-2)<sup>13</sup> and for unhealthy alcohol use via the National Institute on Alcohol Abuse and Alcoholism (NIAAA) recommended tool.<sup>14</sup> The IRB waived the written consent requirement due to the fact that no identifying information was used. Informed consent was obtained verbally from all study participants. One investigator (TL) conducted semistructured interviews. The interviews were recorded and then transcribed by a subcontracted transcriber.

### Analysis

Three investigators (TL, IG, LH) independently generated codes from the primary transcriptions. The codes represented themes found in the data. The investigators initially coded the first four transcriptions independently and then reviewed the coding scheme and resolved discrepancies collaboratively. The transcriptions were saved as Microsoft Word documents, with codes being tracked as Comments within these documents. This process was repeated two more times, with all transcriptions being coded independently and then meeting to come to a group consensus. It was decided ahead of time that transcriptions would be coded until theoretical saturation was reached and no new codes were being introduced in the interviews. A final code list was developed using the constant comparative method.<sup>15</sup> The codes were organised into 11 main themes.

## RESULTS

Thirty-six patients met inclusion criteria at the onset of the study. Of the 36 patients, 21 eligible patients were approached, and four declined. We completed 17 interviews (11 women, 6 men). On average, the interviews were 15–20 min long. For the overall cohort of 36 patients meeting inclusion criteria, the patient characteristics are provided in [table 1](#). When patients presented to the ED, 67% of the time they were admitted to the hospital (see [table 2](#) for hospital admission and ED diagnoses). Patients also had multiple visits to the PCC and the ED ([table 3](#)). Sixteen of the 17 patients we interviewed screened negative for unhealthy alcohol use per the NIAAA tool and 47% had a positive screen for depression per the PHQ-2.

**Table 1** Patient characteristics for cohort meeting inclusion criteria (N=36)

Age	Number (%)
19–39	10 (28)
40–64	18 (50)
65 or above	8 (22)
Race/ethnicity	
Hispanic	8 (22)
Black	16 (44)
White	11 (31)
Other	1 (3)
Insurance status	
Medicaid only	15 (42)
Medicare only	1 (3)
Medicaid and Medicare	16 (44)
Self-pay	1 (3)
Other	3 (8)

We identified 11 themes (box 1), and describe five of these themes that relate to risk of readmission: fragmented primary care relationships contributing to avoidance of ambulatory care, self triage leading to potentially avoidable ED use, adequacy of formal services, heavy reliance on informal support systems and inadequate access to care. The codes contributing to these five themes were consistent throughout the interviews and pertained to either reasons for readmission or current interventions targeted at decreasing readmissions. The other themes represented self-reported descriptions, such as substance abuse for the theme of patient characteristics. Overall, we found that while patients described receiving adequate formal services, barriers in accessing care and disjointed primary care relationships led to patients making their own triage decisions and seeking other support systems.

### Fragmented primary care relationships contributing to avoidance of ambulatory care

Participants described a fragmented relationship with their providers. Nine patients were able to name their primary provider, while seven patients were unable to. In

**Table 2** Most common diagnoses for ED visits and hospital admissions in 2011

ED visit diagnosis	Hospital admission diagnosis
Abdominal pain (16%)	Abdominal pain (12%)
Chest pain (9%)	Nausea/vomiting, abdominal pain (9%)
Nausea/vomiting, abdominal pain (9%)	COPD exacerbation (8%)
COPD exacerbation (5%)	Shortness of breath (6%)
GI bleed (4%)	Congestive heart failure (6%)
Other (43%)	Other (59%)

COPD, chronic obstructive pulmonary disease; ED, emergency department; GI, gastrointestinal.

**Table 3** PCC and ED utilisation

Primary care and ED characteristics	N=36
Medications, mean	12.0
Polypharmacy (>6 medications), n (%)	30 (83)
Number of patient diagnoses (comorbidity), mean	7.1
ED visits in 2011, mean	6.6
Number of follow-up appointments made with PCC	66
Number of follow-up appointments kept	29
Number of patients using behavioural health, n (%)	5 (14)
Average number of PCC visits in the last 12 months	4.3

PCC, primary care centre; ED, emergency department.

terms of their connection with their provider, many expressed concern: ‘I ain’t got no relationship. I don’t even know the person. They don’t even know me. There was no relationship.’

Patients further referred to provider turnover and large provider teams as deleterious to developing a relationship with their providers. One patient explained: ‘Well, I hate that they keep switching doctors. They can’t really keep the same doctor because as soon as you get comfortable with one person they’ll let you know somebody else is there. Now it’s like you got to learn this person all over. I hate changing doctors. I don’t like that.’ Another patient described improving the relationship with her primary provider, stating ‘It [would] make me feel better knowing that somebody cares ([...] They could give advice on the phone telling me what I should do. And I could do that to prevent going to the hospital because I’m in the hospital a lot.’

### Self-triage leading to potentially avoidable ED use

We found that patients were typically going directly to the emergency department (ED) without contacting their primary care provider: ‘I could tell the pain, if it is severe enough to go to the PCC and sit around to be called in the clinic or do I need to just get out there

### Box 1 11 Main Themes

- ▶ Heavy reliance on informal support systems
- ▶ Adequacy of formal services
- ▶ Health literacy
- ▶ Inadequate access to care
- ▶ Fragmented primary care relationships contributing to avoidance of ambulatory care
- ▶ Self-triage leading to potentially avoidable ED use
- ▶ Patient phone call
- ▶ Discharge planning
- ▶ Patient characteristics
- ▶ Readmissions (same or different complaint)
- ▶ Postdischarge Course

and go right to the emergency room. So I could tell the difference, I learned to know my body now after getting so sick and the last three years I've been very sick."

Patients commonly cited inability to reach their primary provider via telephone and the belief that the PCC could not treat acute illness as reasons for going directly to the ED. One patient explained that "I know that once I get there ([to the PCC]), they would send me anyway so I might just as well go to the ([Ed]) first."

Finally, among patients who decided to go to the ED instead of going for an urgent primary care visit, a common theme was delaying action until the situation became more serious. One patient commented "I wait ([ed]) instead to get better ([...]) my head was pounding and when I walked to the bathroom I'd be staggering ([...]) I mashed my lifeline, and the ambulance picked me up."

### Adequacy of formal services

We found that patients had limited or no difficulty accessing formal services such as medication assistance, home care and transportation. All patients except one were able to obtain medications either despite financial barriers or with no financial barriers. One patient noted "I got medical and they basically pay for ([medications])." Patients similarly found home care accessible, describing "Well, I have a nurse coming usually once a week and more often if there is something going on." Formal transportation was obtained with minimal difficulty, with one patient explaining "They have a car that gets me [...] I have to call and make an appointment and they would call people telling them 2 days in advance."

### Heavy reliance on informal support systems

Despite the widespread availability and use of formal post-discharge support systems, patients reported still relying heavily on informal support from friends and family members to help with transportation and medication management. One patient described "So my daughter sets them out now so it makes it easier for the visit nurse, so that's how I manage my medication at home. They put it in a little blue container and my daughter sets them up by the week." Another patient commented "If I can't move, my family give me a ride—my daughter, my man, my niece, my nephew, my son." Patients demonstrated resilient attitudes based on the high degree of support they received from friends and family members, and notably described that they did not feel lonely or socially isolated despite spending a great deal of time in the hospital. Patients also reported feeling safe at home.

### Inadequate access to care

The most commonly cited problem inhibiting patients from accessing medical care was an impaired ability to speak to their provider on the telephone. This was described as both a difficulty in reaching someone on the phone as well as long periods of waiting before receiving a call back from a provider. As one patient

noted, "I don't call primary care because it takes too long to get through to anybody until you get the call — I could have gone on a trip to Europe and back."

Patients also noted that they had stopped even trying to call based on prior experiences:

I try to call the Primary Care Center. But it's like that one time that took 7 hours. I haven't called them [since]. So it's like either I stick it out and let the pain or whatever subside, or I go down to the ER. If I called them one time and it took them some hours to get back to me, I feel that it's useless if I call again.

## DISCUSSION

In this study of underserved patients with a high frequency of hospital readmissions, we found that there may be factors contributing to readmissions that are not addressed by most current interventions, which typically target access to formal outpatient services.<sup>3 16 17</sup> Contrary to our expectations, patients from our sample did not have difficulty accessing medications, home care or transportation. Rather, the primary factors contributing to readmissions that were consistently brought up by patients in our study were self triage to the ED and a lack of primary care relationship.

While other studies have examined the challenges in transitions from inpatient care,<sup>8 18</sup> we explored how patients interacted with the health system when they were home. We found that patients delayed care and then made the decision to go to the ED without attempting to contact their primary providers. Delays in care may have increased risk for readmission. The most consistent reasons for not reaching out to their primary providers were inability to speak with a provider on the phone, the belief that their primary care provider could not manage urgent issues, and patient perception that their primary care provider could not address their concerns in a timely manner.

Our results differ from other qualitative studies evaluating readmissions. In a recent article by Strunin *et al*,<sup>3</sup> patients expressed that they had inadequate medical care at home and lacked transportation to appointments. In contrast, we found that these needs were being met for our high-risk patients. Similarly, a recent survey by Kangovi *et al*<sup>8</sup> of patients that had been readmitted found that lack of medication adherence after discharge was commonly attributed to difficulty paying for medications and obtaining transportation. In our sample of patients, only one patient reported not being able to obtain medications due to cost. Although other studies have included patients with one or more readmission within 30 days of discharge, we utilised more stringent enrolment criteria, requiring patients to have had four or more admissions in the prior 6 months. The high-risk underserved patients that we enrolled may have had more interaction with the hospital system than other patients with fewer hospital admissions, and therefore may have had more opportunity to be linked in with formal services such as

medication assistance, visiting nurse services and transportation arranged through the hospital. However, future studies will be needed to determine if there is indeed a direct association between increased interaction with the hospital system and increased formal services compared to other patient populations.

Our findings suggest that this population of patients needs more targeted interventions to address the consistently stated problems of self triage and a lack of primary care relationship. Another recent study by Kangovi *et al*<sup>19</sup> described a social norm of high-risk patients preferring the hospital for care when they have a change in their health status. They similarly conclude that targeted interventions should address the needs of high-risk patients in the ambulatory setting.

First, improving telephone access to primary care offices is important, as many primary care patients prefer this method of communication, and it is linked to improved patient outcomes.<sup>20–22</sup> An effective telephone system would triage urgent issues and would ensure that a member of the patient's provider team is available to field urgent calls. Patients in our study commonly mentioned that they wanted to receive a timely call back for urgent issues. Open access scheduling, which minimises scheduled appointments to maximise same-day visit availability, typically also improves telephone access by opening up the calendar and streamlining the types of appointments that can be made. The time taken per call is consequently shorter.<sup>23–24</sup> Alternatively, many new electronic medical record systems allow secure messaging through the electronic medical record, thereby reducing demand for telephone access, and facilitating timely responses to urgent calls.<sup>25–26</sup> Future research regarding the best modes of communication with providers will be an important area of inquiry moving forward.

Second, many patients in our study had stopped calling their primary care provider because of their perceptions of the primary care clinic as incapable of handling acute medical concerns. The patient's experiences, such as being transferred from their primary care office to the ED, shaped their perception of the primary care clinic. Once access to providers has been improved and the lack of primary care relationship has been repaired, we would suggest educating patients about the scope of their primary care clinics as urgent care centres, as well as the role of their primary providers in their care when they have a change in their health status. In addition, providers should discuss their role in helping patients make triage decisions when they get sick at home.

Third, patients in our study described inadequate continuity with their providers. Patient-provider continuity has been consistently associated with improved patient outcomes and satisfaction.<sup>27–28</sup> To address the lack of primary care relationship that patients described, there must first be a system in place that enables patients to have continuity with their teams when they have a change in their health status.<sup>10</sup> This is especially difficult in clinics staffed by residents who are present one half

day per week, which is a common model for internal medicine residency programmes. When patients have urgent issues that arise, they are often seen by providers who are not part of their primary care team. A strategy for improving upon this situation would be to arrange residents into practice-partner teams where they would work together to care for a larger panel of patients. While the patients would still need to become familiar with a team of resident physicians, this has the potential to make patients feel more comfortable seeking care for acute issues. This team-based care would also aid in the conversion of primary care clinics to patient-centred medical homes, where continuity is an essential tenet.

Our study has several limitations. First, we focused on an underserved population; our results may not apply to other populations. Second, our sample size is small, though we did employ a comprehensive strategy to identify patients meeting our enrolment criteria during the study period, and we did reach theoretical saturation as evidenced by no new themes being introduced in the final interviews. Third, we conducted our study at a single site, and there may be other factors more prevalent at other sites contributing to readmission.

In summary, we found that even though patients were receiving the formal services that they needed, they were still being driven to make the decision to go to the ED based on long phone wait times for primary care and their belief or experience that primary care cannot treat their acute problems. We propose that educating patients about the capability and role of the primary care provider while concurrently streamlining telephone access to providers could enhance continuity and thereby prevent readmissions. Focusing entirely on arranging formal transitional care services, such as transportation and medications, is unlikely to be adequate in reducing readmissions.

#### Author affiliations

<sup>1</sup>Internal Medicine Residency Program, Department of Internal Medicine, Yale School of Medicine, New Haven, Connecticut, USA

<sup>2</sup>The Robert Wood Johnson Foundation Clinical Scholars Program, Yale School of Medicine, New Haven, Connecticut, USA

<sup>3</sup>Section of General Internal Medicine, Department of Internal Medicine, Yale School of Medicine, New Haven, Connecticut, USA

<sup>4</sup>Center for Outcomes Research and Evaluation, Yale-New Haven Hospital, New Haven, Connecticut, USA

**Contributors** TL was involved in project management, conception, design, analysis and interpretation of data, drafting of the manuscript and approved the final version. IG and LIH were involved in conception and design, analysis, critical revision of manuscript and approved the final version.

**Funding** Dr Horwitz is supported by the National Institute on Aging (K08 AG038336) and by the American Federation for Aging Research through the Paul B Beeson Career Development Award Programme. This work was also supported by a grant from the Claude D. Pepper Older Americans Independence Center at Yale University School of Medicine (P30AG021342 NIH/NIA). No funding source had any role in the study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the article for publication. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute on Aging, the National Institutes of Health or the American Federation for Aging Research.

**Competing interests** None.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data sharing statement** Access to data: LH had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

**Open Access** This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 3.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/3.0/>

## REFERENCES

- Jencks SF, Williams MV, Coleman EA. Rehospitalizations among patients in the Medicare fee-for-service program. *N Engl J Med* 2009;360:1418–28.
- Hansen LO, Young RS, Hinami K, *et al*. Interventions to reduce 30-day rehospitalization: a systematic review. *Ann Intern Med* 2011;155:520–8.
- Strunin L, Stone M, Jack B. Understanding rehospitalization risk: can hospital discharge be modified to reduce recurrent hospitalization? *J Hosp Med* 2007;2:297–304.
- Weissman JS, Stern RS, Epstein AM. The impact of patient socioeconomic status and other social factors on readmission: a prospective study in four Massachusetts hospitals. *Inquiry* 1994;31:163–72.
- Billings J, Zeitel L, Lukomnik J, *et al*. Impact of socioeconomic status on hospital use in New York City. *Health Aff (Project Hope)* 1993;12:162–73.
- Kalra AD, Fisher RS, Axelrod P. Decreased length of stay and cumulative hospitalized days despite increased patient admissions and readmissions in an area of urban poverty. *J Gen Intern Med* 2010;25:930–5.
- Allaudeen N, Vidyarthi A, Maselli J, *et al*. Redefining readmission risk factors for general medicine patients. *J Hosp Med* 2011;6:54–60.
- Kangovi S, Grande D, Meehan P, *et al*. Perceptions of readmitted patients on the transition from hospital to home. *J Hosp Med* 2012;7:709–12.
- Raven MC, Billings JC, Goldfrank LR, *et al*. Medicaid patients at high risk for frequent hospital admission: real-time identification and remediable risks. *J Urban Health* 2009;86:230–41.
- Englander H, Kansagara D. Planning and designing the care transitions innovation (C-Train) for uninsured and Medicaid patients. *J Hosp Med* 2012;7:524–9.
- Annema C, Luttik ML, Jaarsma T. Reasons for readmission in heart failure: perspectives of patients, caregivers, cardiologists, and heart failure nurses. *Heart Lung* 2009;38:427–34.
- Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. *Psychol Bull* 1985;98:310–57.
- Kroenke K, Spitzer RL, Williams JB. The patient health questionnaire-2: validity of a two-item depression screener. *Medical care* 2003;41:1284–92.
- Smith PC, Schmidt SM, Allensworth-Davies D, *et al*. Primary care validation of a single-question alcohol screening test. *Journal of general internal medicine* 2009;24:783–8.
- Glaser BG, Strauss AL. *The discovery of grounded theory: strategies for qualitative research*. New York: Aldine, 1967.
- Boling PA. Care transitions and home health care. *Clin Geriatr Med* 2009;25:135–48, viii.
- Pearson S, Inglis SC, McLennan SN, *et al*. Prolonged effects of a home-based intervention in patients with chronic illness. *Arch Intern Med* 2006;166:645–50.
- Davis MM, Devoe M, Kansagara D, *et al*. Did I do as best as the system would let me? Healthcare professional views on hospital to home care transitions. *J Gen Intern Med* 2012;27:1649–56.
- Kangovi S, Barg FK, Carter T, *et al*. Understanding why patients of low socioeconomic status prefer hospitals over ambulatory care. *Health Aff* 2013;32:1196–203.
- LaVela SL, Schectman G, Gering J, *et al*. Understanding health care communication preferences of veteran primary care users. *Patient Educ Couns* 2012;88:420–6.
- Wasson J, Gaudette C, Whaley F, *et al*. Telephone care as a substitute for routine clinic follow-up. *JAMA* 1992;267:1788–93.
- Curry SJ, McBride C, Grothaus LC, *et al*. A randomized trial of self-help materials, personalized feedback, and telephone counseling with nonvolunteer smokers. *J Consult Clin Psychol* 1995;63:1005–14.
- Steinbauer JR, Korell K, Erdin J, *et al*. Implementing open-access scheduling in an academic practice. *Fam Prac Manag* 2006;13:59–64.
- Rose KD, Ross JS, Horwitz LI. Advanced access scheduling outcomes: a systematic review. *Arch Intern Med* 2011;171:1150–9.
- Zhou YY, Garrido T, Chin HL, *et al*. Patient access to an electronic health record with secure messaging: impact on primary care utilization. *Am J Manag Care* 2007;13:418–24.
- Coleman EA. Falling through the cracks: challenges and opportunities for improving transitional care for persons with continuous complex care needs. *J Am Geriatr Soc* 2003;51:549–55.
- Wasson JH, Sauvigne AE, Mogielnicki RP, *et al*. Continuity of outpatient medical care in elderly men. A randomized trial. *JAMA* 1984;252:2413–17.
- Van Walraven C, Oake N, Jennings A, *et al*. The association between continuity of care and outcomes: a systematic and critical review. *J Eval Clin Pract* 2010;16:947–56.

## APPENDIX 1: LIST OF QUESTIONS FROM INTERVIEW INSTRUMENT

Tell me what happened to you since you went home between last discharge and now?

Do you think there is anything else that could have been done to have prevented you from coming back to hospital, and if so what?

When you have a change in your health at home, or start to feel sick at home, how do you make the decision to try to reach your PMD versus going to the ED?

How often do you try to reach your PMD as opposed to going to the ED?

When you have a change in your health at home, or start to feel sick at home, how long have you waited in the past before contacting your provider?

Can you tell me about the medications you take at home?

Has a financial barrier or problem ever resulted in you not being able to obtain the medications that you need? If so, tell me about it. Has this been a common problem for you?

How do you manage your medications at home?

Do you have any difficulty with your medications?

Tell me what it's like at home for you?

Do you have people who can help you at home?

Do you feel safe at home?

How do you think of the social support you have at home?

What is your financial situation?

In what ways do you have difficulty getting to and from your primary care appointments, if at all?

How do you get around?

In the last couple of weeks, have you been feeling depressed?

Have you ever been on any medications for depression?

Do you feel like these feelings of depression have caused you to have to come to hospital more than you otherwise would have to?

What's your relationship with your primary doctor at the Primary Care Center?

Do you know the name of your PMD, and do you have difficulty reaching your primary doctor if you're having a problem?

How can your primary doctor help to prevent you from having to be readmitted to the hospital do you think?

Can you think of anything more your primary doctor, or the Primary Care Center here at Yale could do?

What do you think are some other things that can be done to help prevent you from having to come back to the hospital, if anything?

Is there anything else that you think that either you or the physicians in the community could do to help you with that?

Do you need any more home support (home nursing care, VNA, etc) than you currently are receiving?

Finally, do you think it would be helpful for your primary doctor to call you at home to check in with you on a regular basis, and why?