

Understanding Rehospitalization Risk: Can Hospital Discharge Be Modified to Reduce Recurrent Hospitalization?

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The authors thank Maria Rizzo DePaoli MSW and Cornelia Walsh RN for assistance with logistics of the study.

Supported by Agency for Healthcare Research and Quality (grant numbers 1UC1HS014289-01 and 1U18HS015905-01 (to B.J.)).

BACKGROUND: A high rate of unnecessary rehospitalization has been shown to be related to a poorly managed discharge processes.

OBJECTIVE: A qualitative study was conducted in order to understand the phenomenon of frequent rehospitalization from the perspective of discharged patients and to determine if activities at the time of discharge could be designed to reduce the number of adverse events and rehospitalization.

DESIGN: Semistructured, open-ended interviews were conducted with 21 patients during their hospital stay at Boston Medical Center. Interviews assessed continuity of care after discharge, need for and availability of social support, and ability to obtain follow-up medical care.

RESULTS: Difficult life circumstances posed a greater barrier to recuperation than lack of medical knowledge. All participants were able to describe their medical condition, the reasons they were admitted to the hospital, and the discharge instructions they received. All reported the types of medications being taken or the conditions for which the medications were prescribed. Recuperation was compromised by factors that contribute to undermining the ability of patients to follow their doctors' recommendations including support for medical and basic needs, substance use, and limitations in the availability of transportation to medical appointments. Distress, particularly depression, further contributed to poor health and undermined the ability to follow doctors' recommendations and the discharge plans.

CONCLUSIONS: Discharge interventions that assess the need for social support and provide access and services have the potential to reduce chronic rehospitalization. *Journal of Hospital Medicine* 2007;2:297-304. © 2007 Society of Hospital Medicine.

KEYWORDS: hospital discharge, rehospitalization, underserved populations, urban health, qualitative methods.

Institute of Medicine (IOM) reports^{1,2} have estimated that between 44,000 and 98,000 patients die every year in hospitals because of iatrogenic errors of omission and commission. More people die in a year from medical errors than from car accidents (43,458), breast cancer (42,297), or AIDS (16,515).³ The IOM report recommended a goal of a 50% reduction in errors over the next 5 years.⁴ Since publication of these reports, a great deal of interest has been focused on how to make our hospitals safer.^{5,6} Times of transitions in care (eg, from home to hospital, from emergency department to hospital, from the intensive care unit to the general ward) have been identified as opportune times to improve continuity and thus to decrease errors.

The hospital discharge process is often nonstandardized and

frequently marked by poor quality.⁷ One in five hospital discharges is complicated by adverse events within 30 days, many of which lead to visits to emergency departments (EDs) and rehospitalization.⁸⁻¹⁰ Nationally, approximately 25% of hospitalized patients are readmitted within 90 days, often because of errors resulting from discontinuity and fragmentation of care at discharge, which exposes patients to iatrogenic risk and raises costs.^{11,12} Low health literacy rates, lack of coordination in the "handoff" from the hospital to community care, gaps in social supports, and the absence of physician follow-up after discharge place patients at high risk of rehospitalization.¹³⁻¹⁵ Increasingly, as hospitalists provide more inpatient care, it is difficult for primary care physicians to be aware of all the complexities of a hospitalization.¹⁶

Studying the hospital discharge process provides an opportunity to learn more about its complexities,¹⁷ which could then be used to standardize the process and focus on those interventions that reduce the number of medical errors and resulting adverse events. However, to date, few studies have described the essential components of the discharge process, and no studies have focused on the discharge process from the point of view of the hospitalized patient. Therefore, a qualitative study was conducted in order to understand the phenomenon of frequent rehospitalization from the perspective of the discharged patient and to determine if activities at the time of discharge could be designed to reduce the number of adverse events and rehospitalizations.

METHODS

The larger study of which this work is a part examined the transition from inpatient service at a large inner-city hospital to community care in order to lead to the development of an intervention to improve the discharge process. Qualitative research stresses the socially constructed nature of reality, and qualitative researchers seek to answer questions that stress how social experience is created and given meaning.¹⁸ Qualitative interviewing permits the researcher to understand the world as seen by the respondent within the context of the respondent's everyday life.¹⁹ Learning from the experiences of patients hospitalized more than once in a 6-month period will help to identify their perceptions and beliefs about their disease and discharge instructions and assist additional interventions that could prevent rehospitalization.

Sample

Semistructured, open-ended interviews were conducted with 21 patients during their hospital stay at Boston Medical Center. To be eligible for the study, a patient had to receive medical care through a health center affiliated with Boston Health Net, a network of community health centers serving primarily low-income patients, and had to have been hospitalized on at least 1 additional occasion in the previous 6 months. Each day during the interview period the Boston Health Net nurse identified all patients previously admitted within 6 months and contacted the interviewer with the names and room numbers of those patients. The interviewer (M.S.) approached potential participants in their hospital rooms and obtained informed consent at the time of the interview. If the patient agreed, the interview was conducted at that time. If the patient was not available at that time, the interviewer made at least 2 attempts to visit the patient at a convenient time. The interviews were conducted on 17 days of a 4-month period with no more than 2 interviews completed a day. The participants ranged in age from 18 to 79; 10 respondents were male, and 11 were female. All were English speaking. The mean age of the 20 patients who provided demographic information was 45.55 years, and the median age was 47 years. Nine of the participants reported their racial or ethnic identities as white (5 male, 3 female), 3 as black (2 male, 1 female), 4 as African American (1 male, 3 female); 1 as Latina; 1 as Hispanic (male), 1 as Spanish (male), and 1 as mixed (female). One male and 1 female participant provided no race or ethnic identity. Two participants were excluded from the study because they did not speak English, and 2 were excluded because they were unable to speak due to their medical conditions. Interviews were audiotaped, but full names were not used on the tape. Only subject code numbers were used to identify respondents. The discharge records of each participant were reviewed for consistency with that participant's descriptions of his or her condition. The study was approved by the Institutional Review Board of Boston University Medical Center.

Interview Guide

To help assure collection of comparable qualitative data, an interview guide listed specific questions and topics to be covered in a particular order in the interview. Questions were drawn in part from a

pilot test of interviewing patients on the inpatient service rehospitalized within 90 days of the previous admission.¹⁷ Interviews assessed continuity of care after discharge, need for and availability of social support, and the participant's ability to obtain follow-up medical care. The interview script consisted of open-ended questions about events leading up to the current hospitalization, previous hospitalizations, instructions received the last time discharged, home situation, and ability to attend medical appointments, and participant feedback on the discharge process was requested. Follow-up questions were asked based on a patient's responses to these questions. Interviews lasted between 20 and 45 minutes.

Analysis

The interview tapes were transcribed by a subcontracted transcriber, and the transcripts were checked for accuracy by the interviewer. Each interview was evaluated according to a set of thematic codes developed by 2 qualitative researchers (L.S. and M.S.). The codes represent categories or themes found in the data, and the appropriate codes were attached to their corresponding sections of text. To improve interrater reliability in coding, the 2 qualitative researchers coded 3 interviews, reviewed the codes, and, once it was clear that they both understood the coding scheme, coded the interviews. They resolved any problem cases and checked each other's work throughout the coding process to ensure that each interview was coded correctly. The findings were analyzed to explore whether there were linkages between and among particular themes. The discharge records of all patients were reviewed in order to compare the discharge notes about each patient's condition with that patient's own description of his or her condition and treatment.

RESULTS

All the patients who participated in this study were able to describe their medical condition and the reasons they were admitted to the hospital. Almost all, 20 of the 21 participants, were rehospitalized for the same primary diagnosis. For 5 of these 20 participants, length of time since the last hospitalization was 5-6 months (4 for diabetes control, 1 for a lupus erythematosus flare); for 4 participants time since last hospitalization was between 6 weeks and 2 months (1 because of a fall, 1 because of seizures, 1 with hypertension, and 1 with SOB); for 8 partic-

ipants time since last hospitalization was between 3 weeks and 1 month (2 with kidney disease, 2 with seizures, and 1 each with chronic obstructive pulmonary disease, sickle cell disease, PVD, and alcoholic gastritis), and for 3 participants time since last hospitalization was 1-2 weeks (1 each with abdominal pain, alcohol intoxication, and lower gastrointestinal bleed). The principal diagnosis in a patient's discharge records matched that participant's description. Participants also described the discharge instructions they received. Although some did not report the "brand names" of the medications they were taking, all reports of the types of medications being taken or the conditions for which the medications were prescribed were consistent with discharge summaries. Although none of the participants incorrectly reported a medication or condition to the interviewer, a few did not provide information about every medication or condition. In 1 case the discharge summary noted medications for bipolar disorder and mental illness; in 2 cases medications were prescribed for depression. None of these participants mentioned these conditions or medications to the interviewer. One patient talked about "stress and depression," but nothing was written about these issues in the discharge record.

For participants in this study, difficult life circumstances posed a greater barrier to recuperation than did lack of medical knowledge. The interviews conducted in this study illustrate the personal and social impact of disease that resulted in rehospitalization.

Discharge and Medical Knowledge

During discharge, transition care processes can fail at many points.²⁰ These include: communication of the care plan, reconciliation of current and initial medication regimens, transportation of the patient, follow-up care with a provider, and preparation of patient and caregiver for maintaining the patient's regimen.^{4,20-22} Participants in this study identified some of these and other factors as constituting barriers to effective care transitions.

At discharge, 7 participants were advised by physicians to change their diets or refrain from tobacco or alcohol use. Participants clearly understood the instructions and could give detailed accounts of diet changes they were supposed to make or explain the reasons tobacco or alcohol use caused or exacerbated their diseases. A diabetic whose discharge instructions included diet change

listed “*sweet ones, starchy ones...with a lot of carbohydrates*” as foods she is not supposed to eat, whereas others described the links between alcohol use and adverse health: “*In my mind, I think that alcohol is a way out....But I know that it, that it's not....And so, the pancreatitis develops.*”

Lack of understanding about their medical condition or of knowledge about procedures to be followed was not evident in this population. Instead, recuperation was compromised by factors such as distress, substance use, support for medical and basic needs, and limitations in the availability of transportation to medical appointments. Many participants reported not receiving necessary rest as a result of needing to work or care for young children.

Crises and Coping: Distress

Despite understanding needed behavior changes, almost half the participants explained how difficult life circumstances and gaps in ongoing care or support made it impossible for them to follow medical advice.

Almost half the participants described themselves as being stressed, sad, or depressed. Their explanations indicate a relationship between distress and subsequent behaviors that exacerbated their conditions.

Of 3 self-described alcoholics, one, a 52-year-old white man rehospitalized for alcohol related seizures, had relapsed after the deaths of his mother and his girlfriend. He explained, “Well, after my girlfriend died, I really started to hit the bottle.” Another, an unemployed 45-year-old black woman, lacked stable housing and at the time of the interview lived with a heavy drinker. She said that “when I get stressed out, the first thing I want to do is go run to the [liquor] store.” The third self-described alcoholic, a 62-year-old white man, reported drinking because of lack of regular treatment for chronic depression:

My problem is has to do with stress and depression, which is what I'm gonna try to deal with this time. 'Cause that's...contributed to me getting so depressed I just...just started drinking again. I just...next time it'll kill me. So. That's almost...a kind of a suicide wish, I guess....I know it's gonna kill me if I keep drinking....I think I need to get into something. But...there's...I don't know if you call it “substance abuse,” but...I think it's related to...deep depression, which is not necessarily substance abuse, but it can...I'm sure there's some relationship.

Similarly, the experiences of participants with

diabetes illustrate clearly how depression contributed to undermining their ability to follow their doctors' recommendations. For example, an 18-year-old African American teenager rehospitalized for diabetes control discussed her inability to maintain her physician-recommended diet:

Like when I'm stressed out...I get depressed and, um...I give up. Just don't wanna do it anymore. It's not [that] I don't want to, I can't. I just can't do it... I, when I got home, I actually did good! I actually really did good. I was eating salads. I did go on a diet. I ate salads, grilled food, and things like that. I took my medicine. I started loggin', like writin' everything down in a book. I wrote down what I ate every day, what my blood sugar was, and how much medicine I took. I was doin' good. But then I got depressed, and I stopped doin' it.

Continuity of Condition Management

Participants expressed a need after discharge for help at home, although in most cases, the help they reported needing did not require medical knowledge or technical skills.

Skilled Care

Few participants reported needing and/or receiving visiting nurse services; even in these cases, some of the responsibility for care fell to family members. Their health suffered because they lacked sufficient access to visiting nurse services or other needed support. A 42-year-old Latina diabetic with kidney infection described a visiting nurse's unsuccessful attempt to teach her husband how to change her catheter:

They try to show, 'cause before? I don't got the catheter, they're comin' in my house, in the morning? You know, put the catheter into my bladder, and they come back before me go to sleep, they try to show my husband how to do it, but he can't [CHUCKLES LIGHTLY], you know, he can't....So the...the doctor decide to leave the catheter there.

Basic Need Care

For most participants, the posthospital assistance needed did not require medical expertise. In the period after their last hospitalization, most participants needed assistance with daily chores such as cleaning, cooking, child care, and driving; they turned to friends and family members to meet these needs. However, because no family member was capable of providing full-time care during recuperation, some participants were unable to follow advice from physicians about resting or refrain-

ing from certain activities. A 67-year-old African American man whose foot ulcers kept him from walking explained that during his recuperation he had to stay in the same place for 8 hours while his brother worked:

Oh, maybe if I had to go to the bathroom or something, I can't...but for the most part, I guess I had things set up...where I didn't, you know, where I didn't move...I just set my things up to keep me from movin' all day. I'd set my food up and everything else, little sandwich and all that. So, there wasn't anything about...you know, worrying about movin'...or getting hungry, I guess.

None of the participants were able to pay for support services such as housecleaning or in-home care, and all relied on busy friends and family members to meet their needs.

The experiences of 3 single mothers with health conditions characterized by debilitating chronic pain illustrate how very different access to supportive family members affected their ability to seek care and follow medical instructions as well as how child care responsibilities compromised their recuperation. One, a 20-year-old African American woman hospitalized for polycystic kidney disease, described situations during which the intensity of the pain did not permit her to do basic household chores. At those times she relied on her 5-year-old son:

He...he actually knows how to sweep, he knows how to wash dishes. At 5 and a half, he surprised me, but [CHUCKLES] he can wash dishes, so. He has to get up on a chair, but he can wash 'em.

As a result of needing more care than was available, she traveled south to stay with her mother, who was unable to leave work to come to Boston:

I took the bus because my son has sickle cell trait, so they told me from day one it's not really good for him to fly on a plane? So, I had to take him...it took like 20 hours...you know, stoppin' here, stoppin' there, like, pullin' my bags and stuff, so it put me in more pain than I was in.

Another, a 24-year-old of "mixed" background chronically hospitalized with sickle cell pain crises, delayed medical treatment because of lack of child care:

There's been times that I have had to wait till I could find somebody to watch my kids, to even come to the hospital...There's been times that...uh, it'd be a while before I could get anybody, so instead of me coming to the hospital, I have to wait at home, in a lot of pain...I would

have to wait...any time between 5 hours to 2 days before I could find somebody to watch my kids.

This pattern of child care interfering with recovery continued after leaving the hospital:

The minute I get home it'd be nice to have somebody to watch the kids, so I could at least recuperate for like 24 hours before I have to take care of things...I would have to usually just go home and just get right to it.

The experience of a third, a 29-year-old African American woman with systemic lupus erythematosus, illustrates the ways in which family support can ease the burden of illness. This participant relocated to be close to her mother, aunt, and cousins, all of whom cared for her children when she is in the hospital:

When I was in [NEIGHBORING STATE] it was terrible... 'cause my, my kids wasn't goin' to school, 'cause I couldn't get up to get them dressed and wake them up. My daughter almost got kept back and stuff. It was real hard...and it wasn't good, you know, that they could just...run through the house rampant, do whatever they want and not be supervised....So that was very dangerous, too. And then, it put like, it put a strain on my oldest, my daughter...

She contrasted this with her current situation in which family members cared for her children when she is in the hospital or sick at home:

Like, this morning...they took the kids to school for me and everything. Made 'em breakfast, made sure they was dressed right this morning...My mother picked them up from school this afternoon.

Transportation to Appointments

Travel to follow-up appointments was difficult for many participants. Almost half reported taking public transportation to appointments; the others either drove themselves, were driven by relatives or friends, or paid for taxis. Those relying on public transportation were more likely than others to miss appointments because of transportation issues if they did not feel well:

Depending how I feel. If I feel all right, I'll take the bus; if not, I'll get a taxi or I'll just won't show up. I would borrow a bus pass or somethin', you know, from [HIS NAME] is Joe...because I would make, like, evening appointments. Um, because my sickle cell tends to act up if it's cold...So, if it's really cold, I don't go.

As one 55-year-old white woman who has seizures summed up the matter of traveling by bus

when not feeling well, "You do what you have to do!"

DISCUSSION AND CONCLUSIONS

The hospital discharge process has been identified as a time when sources of error occur that result in rehospitalization. Many factors that adversely affect care transitions apply to the hospital discharge process, including preparation of the patient and caregiver, communication of the care plan, changes in the medication regimen, transportation of the patient, scheduling of follow-up care, and availability of advance care directives.²⁰ Patients with low socioeconomic status have been found to be especially vulnerable after discharge. A 1989 telephone survey of 6455 patients recently discharged from hospitals in the United States found that low socioeconomic status and poor patient health were independent predictors of patient problems after discharge.²¹ A nationwide telephone survey of 1800 recently discharged patients and their care partners also revealed that low socioeconomic status and poor patient health status were associated with problems experienced by care partners.²²

High rates of unnecessary rehospitalization have been shown to be related to poorly managed discharge processes.²³ Although some factors identified in other studies of care transition did influence the rehospitalization of participants in this study; others did not. Transportation and follow-up care greatly affected rehospitalization, whereas health literacy had a minimal effect. Fifteen of 20 participants were readmitted within weeks up to 2 months for the same primary diagnosis, yet they understood their medical conditions and knew the procedures to be followed. Having a chronic illness may have affected their understanding of their disease because they had received teaching over time. However, for most participants in this study—inner-city, minority, low-income patients—factors beyond the discharge process affected their rehospitalization. Difficult life circumstances and gaps in ongoing care or support resulted in distress and behavior that exacerbated their conditions. Participants lacked social and emotional support that would have enabled them to prioritize maintaining their health.

Although there is not a universally accepted definition of the concept of social support, it is generally understood that it involves emotional connection and caring²⁴ and occurs in a relationship in which the person providing the support is

equipped to respond to a wide variety of needs ranging from practical assistance to counseling and encouragement based on the concerns or life circumstances of the patient. Qualitative studies of social support interventions demonstrate the ways in which having a dependable person to whom a patient can turn for encouragement, information, and practical assistance improves the patient's ability to maintain health regimens and manage chronic pain. An intervention in which nurses made weekly telephone contact with low-income pregnant smokers helped these patients manage numerous stressors and, in some cases, reduce their tobacco use.²⁵ A support group for women with chronic pain helped participants learn practical strategies for reducing pain and reduced isolation and emotional distress about their conditions.²⁶ A study of consumer experiences of transition care²⁷ found that the most valued institutions were those in which providers from one facility thoroughly communicated a patient's medical and treatment history to providers in another; also important was involving the consumer in medical decision making, preparing the consumer to actively participate in his or her own care, and attending to individual needs and preferences.

This study had several limitations, including reliance on participants' reports of their conditions and experiences with medical staff at a time when they were rehospitalized. In the vulnerable position of being hospitalized, participants may have been reluctant to have complaints about their hospital experiences tape-recorded. All participants reported positive experiences with hospital staff during the formal interview. Two participants reported negative experiences with hospital staff after the audio-recorder was turned off and the interview concluded. Other limitations of the hospital setting include limited privacy. Either a roommate was present during the interview or the interview was interrupted by a visit from a hospital staff person or a telephone call. Participants were asked to recall events that for some had occurred several months before the interview, introducing the possibility of inaccurate recall. To address these limitations, we compared interview transcripts to discharge summaries in order to assess any inconsistencies that may have resulted from this lack of privacy. The differences between summaries and patient self-reports were that 2 participants did not report illicit substance use and 2 did not report psychiatric conditions. Despite these limitations, conducting this

study in a hospital setting allowed investigators access to a highly vulnerable population that would be most affected by improvements in the discharge process. Given the difficulties many participants reported in getting to appointments, it is unlikely that a study conducted outside the hospital setting would have effectively reached this population.

These results support the findings in this study that life circumstances outside the hospital can be as important to recovery as institutional coordination of medical care. Although the stresses described by the low-income patients in this study may not directly cause subsequent illness, their experiences clearly demonstrate the ways in which stresses make it difficult or impossible to attain sufficient rest to heal, maintain the behavioral change necessary to improve health, and follow instructions given by clinicians at the time of discharge. Interventions targeting low-income patients thus are more likely to succeed if they include provisions for social support and assist patients in easing the burden of daily responsibilities. Effective transition care includes support that may not be explicitly medical, but without which participants lack the stability to fully recuperate. Without the possibility of taking a break from household or parenting responsibilities, it is difficult to rest enough to truly recover. The descriptions of extreme measures taken in order to obtain needed support illustrate how recuperation was compromised by both family responsibilities and lack of flexibility in caregiver work schedules. Distress, particularly depression, further contributed to poor health and undermined the ability to follow doctors' recommendations and discharge plans.

Discharge interventions that explicitly assess requirements for social support and connect patients with agencies or volunteer groups that call or visit those recuperating, provide meals on wheels, or offer other services such as light cleaning or shopping can address the complex circumstances that result in poor health and chronic rehospitalization. This study has identified the crucial role social support plays in getting and staying well.

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Received 18 July 2006; revisions received 22 December 2006 and 9 February 2007; accepted 12 February 2007.

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