

BMJ Open Quality Patient vs provider perspectives of 30-day hospital readmissions

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ABSTRACT

Objective To compare patients' and providers' views on contributors to 30-day hospital readmissions.

Design Analysis of a qualitative interview survey between 18 May–30 June 2015.

Setting Interviews were conducted during the 30-day admission hospitalisation at a single tertiary care academic hospital.

Participants We conducted 178 interviews of readmitted patients.

Measures We queried opinions of what factors patients believed contributed to their rehospitalisation and compared this with the perspective of the index admission provider. The primary outcome was the view that the readmission was preventable. A review by a RN (nurse) case manager also provided an assessment based on patient report, provider report and chart review.

Results Patients were more likely to view a readmission as preventable compared with physicians ($p < 0.0001$). Patients identified system issues (defined as factors controlled by the hospital discharge process) as contributors to their readmission in 58% (103/178) of cases while providers identified system issues as the contributor to a patients' readmission in 2% (2/101) of cases. Patients with poor functional status were more likely to feel the cause of their readmission was due to system issues than patients with better functional status ($p = 0.03$). A RN case manager review determined that in 48% (86/178) of cases the system had some amount of contribution to a patient's readmission. There was no significant difference in belief that the readmission was preventable between the RN case manager and the patient ($p = 0.47$).

Conclusions Readmitted patients often feel that the hospital system contributed to their readmission. Providers did not recognise patient and RN case manager identified issues as contributors to hospital readmissions.

INTRODUCTION

Problem description

In 2011, Medicare estimated the readmission rates for those enrolled in Medicare part A (age >64) within 30 days of initial hospital discharge at 19%.¹ This resulted in roughly 3.3 million readmissions in 2011 alone and an additional \$41.3 billion of hospital costs.² To incentivise cost control, in 2012, the Medicare Hospital Readmissions Reduction Program (HRRP) instituted financial penalties for hospitals not meeting prespecified

readmissions rates.^{3–5} It is reported that 78% of all hospitals received some amount of HRRP penalty in 2015 totalling \$428 million in withheld payments to hospitals.⁴ Furthermore, large teaching hospitals appear to have a higher risk of being penalised under HRRP.⁶

Available knowledge

The increased financial pressure on hospitals in recent years has led to a flurry of clinical trials on readmission prevention. Data now exist on everything from prediction algorithms, to closer primary care provider (PCP) follow-up, to discharge planning services, to medication interventions.^{7–10} Ongoing research both in the hospital and in the community settings seek to keep discharged patients out of the hospital.^{9 11} This combination of research effort and financial pressure³ culminated in a decrease in readmission rates from 19% in 2011, to 18.5% in 2012, to 17.5% in 2013 and 17.8% in 2016.^{1 3 12} This is a notable reduction in readmission rates, but still likely represents the tip of the iceberg since previous studies have hypothesised that 26%–76% of readmissions are avoidable.^{13 14} The question remains, how do we prevent the remaining avoidable readmissions and what factors are contributing?

Specific aims

Only a handful of studies have asked patients their viewpoint on the cause of readmission.^{15 16} Recently, Auerbach *et al* showed that communication, readiness for discharge and supporting patient self-management contribute to preventable readmissions.¹⁴ Our goal was to compare readmitted patients with their discharging physicians regarding assumed causes of their readmission. We then sought to compare these responses to those of an RN case manager who reviewed the chart and interview responses.

METHODS

Context

We used data collected from qualitative interviews of randomly selected patients over 18



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years of age readmitted within 30 days of discharge from Stanford Hospital, a 475-bed suburban teaching hospital, between 18 May and 30 June 2015. The survey was conducted on behalf of Stanford Hospital administrators as part of a quality improvement initiative.

Study design

Readmissions were defined as an unplanned admission to Stanford Hospital on any inpatient service within 30 days of date of discharge from Stanford Hospital. Admissions were considered planned if there were preadmission orders for surgery or chemotherapy. Any diagnosis was eligible for inclusion except child birth. Patients with multiple readmissions during the study period had each readmission included as a separate event. Patients with different index and readmission services were included as were patients with readmissions for causes unrelated to their index diagnosis. Eligible participants were identified by a daily update sent out by hospital administration flagging all 30-day hospital readmissions. Not all readmissions on the daily list were interviewed due to time constraints. Interviewers selected patients randomly off the daily list without preset criteria. The purpose of random selection was to allow interviewers to see as many readmitted patients as possible without limiting their work flow. Since this study was conducted as a qualitative hospital survey, response rates were not collected.

Eligible participants were interviewed in person during their readmission visit. Interviews lasted approximately 30 min, and all answers were typed and directly uploaded into a secure computer database after the interview. Patients had to either have ability to complete the interview themselves or have a family member or caregiver who could act as their proxy. If neither patient nor caregiver could complete the interview, the patient was excluded. Language interpreters, either in person or over the phone, were used for all non-English speaking participants. All interviews, chart reviews and provider contact were conducted by two trained RN case managers.

Measures

Patient interviews

Interviews were performed using a standardised questionnaire created from a combination of published data plus questions added specific to Stanford Hospital. Patients were asked 11 questions with various formats including yes/no, multiple-choice and free text. For the purposes of this study, only question number three which focused on perceived contributors to the readmission was analysed (figure 1). This was a multiple-choice question with the option for 'other' to write-in an answer.

Provider interviews

Following the patient interview, the attending physician at the time of discharge from the patient's index admission based on chart review was contacted either by phone, pager or email for feedback by the RN case manager. Each was given the patient's readmission diagnosis and

was asked to review the chart and provide feedback on what factors could have contributed to the patient's readmission. They were asked a single multiple-choice question regarding what they believed contributed to the readmission (figure 1).

Review by RN case manager

All interviewed patients' medical records underwent a manual chart review by the same RN case managers who conducted the patient and provider interviews. An audit tool based on previously published data for chart review¹⁷⁻¹⁹ plus additions unique to Stanford Hospital electronic medical record was used to perform a standardised chart review. The manual chart review obtained: follow-up appointment timing and attendance, post-discharge service utilisation and timing, that is, skilled nursing facility (SNF) or home health services (HHS), and admission/readmission diagnosis. The RN case manager then compiled the chart review with the patient and provider interviews and formed their own conclusion if anything could have been done different by the healthcare system to help prevent the readmission. The RN case managers could provide more than one response if they concluded multiple patient and/or system factors affected the readmission. Thus, their perspectives total greater than 100%.

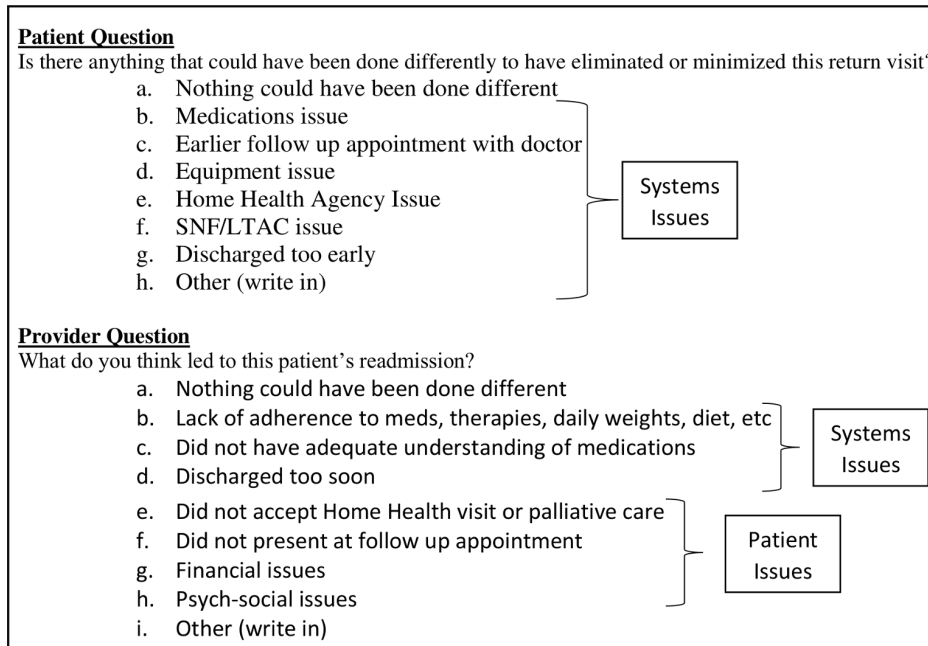
Electronic chart review

The electronic chart review used a research database known as Stanford Translational Research Integrated Database Environment to evaluate carefully selected variables from the electronic medical record and uploads them into Excel. We evaluated potential risk factors for readmissions based on previously published data.²⁰⁻²³ The variables we included were: need for durable medical equipment at discharge, functional status at discharge based on RN bedside assessment, PCP follow-up, follow-up phone call after discharge and SNF/HHS utilisation. These variables were then compared with the patient's perspective of contributors to readmission to see if any areas correlated with patient perceived risk for readmission.

Analysis

Descriptive statistics were used for all demographic data described as medians with IQRs, total counts and per cent. When looking at larger trends, responses were grouped into 'system' and 'patient' and 'no modifiable cause' for ease of statistical analysis (figure 1). The primary outcome was the view that the readmission was preventable. The patient perspective was compared with risk factors for readmission with χ^2 analysis. For the question of whether anything could have been done to prevent readmission, we used McNemar's test to compare beliefs that the readmission was preventable between providers and patients and between RN case managers and patients.

In situations where the RN case managers identified more than one contributor to readmission for an individual patient within separate categories (ie, patient



1. Is this interview with patient or caregiver?
2. How do you think you became sick enough to be readmitted to the hospital?
3. Is there anything that could have been done differently to have eliminated or minimized this return visit?
4. Before you left the hospital last time, did you have a scheduled appointment with your doctor?
5. If you had a scheduled appointment with your doctor after your last discharge, were you able to make it to your appointment?
6. When you (or your family member) encountered problems/concerns after you left the hospital, did you know who to call?
7. When you (or your family member) encountered problems/concerns after you left the hospital the first time, who did you call for assistance?
8. How did you (or your family member) come to the hospital when you came in last?
9. If you had a surgery in your last visit, what complications brought you back to the hospital?
10. Were the discharge instructions written down easy to read and understand?
11. At the time of your discharge, did someone talk with you about which medications to take when you left and which ones to discontinue?

Figure 1 Questions asked to patients and providers regarding reason for 30-day hospital readmission. For patients, questions a–g were included as perceived ‘systems issues’. For providers, questions b–d were considered ‘systems issues’, and questions e–h were considered ‘patient issues’. LTAC, Long-term acute care; SNF, skilled nursing facility.

factors and systems issues) each value was counted separately. When RN case managers identified more than one contributor to readmission within the same category (ie, two systems issues), this was counted as a unit when

summarising totals for each category (ie, total systems issues identified by RN case managers). A two-sided p value <0.05 was considered statistically significant. Statistical analyses were performed using Excel spreadsheet.

RESULTS

Patient population

A total of 3601 patients were discharged during the study time period from 18 May to 30 June 2015. Of these patients (469/3601), 13% returned as readmissions within 30 days of their last discharge. A total of (182/469) 39% were interviewed regarding what they believed contributed to their 30-day hospital readmission. Seventeen of these patients were readmitted twice during the 44-day window interviews were conducted and data from both readmissions were included. Four of the patients enrolled had their interview data excluded due to inability to complete the interview but demographic data were collected as they did complete enrolment. The patient population was evenly split between male and female (table 1). They had a median of four total admissions per person over the preceding 5 years and represented a mix of surgical, medical and transplant service admissions. The most common reasons for readmission were pain and infection management (table 1).

Provider population

Of the 182 patients enrolled, we received 101 (57%) responses from the original attending physicians. The providers who responded were (31/101) 30% hospitalists and (70/101) 70% specialists.

Patient, provider, RN case managers perspectives on readmission

We analysed the sum of how often patients, providers and the RN case managers felt a modifiable system issue contributed to readmission, the patient contributed to readmission or nothing could have prevented readmission. A total of (103/178) 58% of patients believed a modifiable system issue contributed to their readmission. The most commonly mentioned systems issue was being discharged too early which (37/178) 21% of patients expressed (table 2). Patients were not directly queried if their own compliance or personal issues contributed to the readmission. Providers felt that no modifiable cause for readmission could be identified (72/101) 71% of the time. Patient psychosocial or adherence factors comprised another (28/101) 28% and only (2/101) 2% of the time was a system issue faulted as a contributor to readmissions (table 2). RN case managers found no modifiable cause in (73/178) 41% of the readmissions. However, unlike the providers, they identified systems issues in (86/178) 48% of readmissions and patient adherence issues in another (35/178) 20% of readmissions (table 2).

Comparing perspectives

Providers and patients agreed that the admission was preventable in 22 and non-preventable in 30. In 49 cases, the providers disagreed (in 42 patients felt the admission was preventable and in 7 the providers felt it was preventable, $p < 0.0001$). However, when specific reasons for reason for readmission were examined, we found that providers rarely agreed with patient's perspective. Only

Table 1 Demographics of readmitted patients

Age (n=164)	60 (46–69)
Gender (n=164)	
Male	84 (51)
Race (n=164)	
White (non-Hispanic)	82 (50)
Other	50 (30)
Asian	18 (11)
Black	14 (9)
Language (n=164)	
English	145 (88)
Insurance payer (n=164)	
Private	53 (32)
Medicare	76 (46)
Medical	35 (21)
No of hospitalisations in past 5 years (n=164)	4 (3–7.3)
Service (n=182)	
Medical service	108 (61)
Surgical service	52 (29)
Transplant	18 (10)
Length of stay (n=182)	
Days	5 (2–10)
Time between discharge and readmission (n=182)	9 (4–16.8)
Reason for readmission (=182)	
Pain	35 (19)
Infection	35 (19)
Oedema/short of breath	29 (16)
Other	28 (15)
Weakness/poor intake	17 (9)
Altered mental status	11 (6)
Wound	9 (5)
Neutropenic fever	7 (4)
Bleeding/anaemia	6 (3)
Acute kidney injury	
Discharge disposition (n=182)	
SNF	27 (15)
HHS	39 (22)
DME given at d/c (n=164)	29 (18)
Functional status (n=176)	
Independent/min assist	101 (57)
Mod/max assist	75 (43)
No of days to PCP f/u (n=145)	9 (4–15)

Values listed as medians with IQRs, and per cent relating to the index admission unless specified.

Because some patients were readmitted more than once during the study period, their interviews were counted twice but their demographic data were reflected only once. DME, durable medical equipment; f/u, follow-up; HHS, home health services; Max, maximum; Min, minimum; Mod, moderate; PCP, primary care provider; SNF, skilled nursing facility.

Table 2 Patient, provider, RN case managers' response to the following question: Is there anything that could have been done differently to have eliminated or minimised this return admission?

Patient response	%	Provider response	%	RN case managers response	%
No modifiable cause identified	42	No modifiable cause identified	71	No modifiable cause identified	41
System: discharged too early	21	Patient: adherence Issues	13	System: inadequate education prior to discharge	17
System: earlier f/u appointment with a doctor	7	Patient: did not present to f/u	5	System: inadequate postdischarge f/u care/appointment	14
System: SNF/LTAC issue	7	Patient: psychosocial	4	System: inadequate assessment postdischarge level of care	14
System: needed more help with ADLs at home	7	Other	3	System: discharged too soon	12
System: other	5	Patient: patient did not accept HHS	2	Patient: lack of adherence or understanding medications/therapies	10
System: medication issue	4	Patient: financial	1	Patient: psychosocial	3
System: HHS issue	3	System: discharged too early/HHS issues	2	System: inadequate medication management/reconciliation	3
System: equipment issue	2			Patient: no show to f/u	3
System: lack of wound or insulin supplies	2			Patient: financial issues	2
				System: lack of timely exchange of healthcare information to PCP	<1

Providers (71%) were more likely than patients (42%) or RN case managers (40%) to identify 'no modifiable cause' that could have prevented readmission.

The RN case managers could provide more than one answer for patient and system issues so numbers do not add up to 100%. ADL, activity of daily living; f/u, follow-up; HHS, home health services; LTAC, long-term acute care; PCP, primary care provider; SNF, skilled nursing facility.

(2/101) 2% of cases did providers agree with patients that the system contributed to a readmission. Providers only shared the patient's perspective when both parties felt nothing could have been done different to prevent

the readmission which accounted for (30/101) 30% of cases (table 3).

Unlike the providers, the RN case managers agreed with the patient perspective in (145/178) 81% of readmissions.

Table 3 Representation of how often the RN case managers versus the provider from the index admission agreed with the patients' perspective of what contributed readmission

Patient identified issues, count (%)	Agreement	Provider, count (%)	RN case managers, count (%)
System issues: 103 (58)	Agreed with patient	2 (2)	66 (37)
	Agreed: patient and system issues caused	N/a	15 (8)
	Disagreed: patient issues	20 (20)	13 (7)
	Disagreed: nothing could have been done different	42 (42)	9 (5)
	Total agreement on system issues	2 (2)	81 (45)
Nothing could have been done different: 75 (42)	Agreed with patient	30 (30)	64 (36)
	Disagreed: patient issues	7 (7)	6 (3)
	Disagreed: system issues	0	4 (2)
	Disagreed: patient and system issues	N/a	1 (1)
	Total agreement that nothing could have been done different	30 (30)	64 (36)
Total agreement		32 (32)	145 (81)
Total disagreement		69 (68)	33 (19)

Patients felt that 58% of the time system issues contributed to their readmission.

RN case managers agreed with patients that systems issues contributed to the readmission 45% of the time while providers agreed only 2% of the time.

N/a, not any

Table 4 Patient perception of hospital support at discharge versus risk factors for readmission

Patient perception of discharge	No modifiable factors	Needed more support	X ²	Count
Mod/max assist	25	50		
Min/no assist	50	51	0.03*	176
DME	8	21		
No DME	67	82	0.08	178
Discharge HHS/SNF	23	44		
Discharge home	52	58	0.09	177
PCP f/u >14 days	19	23		
PCP f/u <7 days	36	30	0.35	108
F/u phone call	19	23		
No f/u phone call	56	80	0.64	178

Patients requiring moderate/max level of assistance to ambulate correlated with patient perception that more support could have prevented hospital readmission.

Comparison by χ^2 testing.

Count is the number of patients included as some patients did not have data available.

*Statistically significant.

DME, durable medical equipment; f/u, follow-up; HHS, home health services; PCP, primary care provider; SNF, skilled nursing facility.

In (81/178) 45% of cases, the RN case managers agreed with the patient that the system contributed to the readmission and another (64/178) 36% both parties agreed that nothing could have been done different to prevent the readmission (table 3). There was no significant difference ($p=0.47$) between patient and RN case managers views that the readmission was preventable.

Patient risk factors

Poor functional status was associated with patients perceiving system issues as having contributed to their readmission by χ^2 testing ($p=0.03$) (table 4).

DISCUSSION

Summary

We are the first to our knowledge to report the patient perspective of readmissions, provider perspective of readmissions and in-depth chart review by an RN case manager. This study found a marked divergence in perspective between providers, patients and RN case managers on contributing factors to hospital 30-day readmissions. Patients often felt on discharge more could have been done to prevent readmission. Providers, on the other hand, most frequently said nothing could have prevented the readmission or that patient-specific factors led to the readmission. Our RN case managers found areas for hospital improvement in methods of discharge for nearly half of readmissions and often agreed with patient perspectives.

Interpretation

We found that patients frequently identified opportunities for the medical system to improve discharge timing, follow-up, home health and skilled services. This confirms what previous studies have demonstrated as contributors to readmissions.²⁴ Interestingly, patients

identified items that theoretically could have been addressed before discharge. Most commonly, patients cited lack of readiness for discharge which 21% of patients expressed as the main reason they were readmitted. Furthermore, the patient perception of hospital process contribution to readmission was correlated with their functional status at the time of discharge from the index admission. Patients with poorer functional status at the time of discharge more often perceived the hospital as having contributed to their readmission. Even in this small population physically limiting needs seemed linked to the patients' perceived ability to stay out of the hospital. This is consistent with prior publications citing functional status as a risk factor for readmission.^{22 25}

We found that providers did not share the patient's opinions of discharge. Providers nearly always said no factors could be modified to prevent the readmission or pointed to patient-specific factors as cause for readmission. However, review by a RN case manager found in 49% of readmissions the hospital system had some amount of opportunity to improve the discharge process. The RN case managers more often agreed with the patient's perspective of readmission than the provider's.

Our reviewers' frequent agreement and providers' disagreement with the patient perspective is an interesting discrepancy. RN reviewers and physicians were working in the same hospital, at the same time, with access to the same patient chart information, and reached very different conclusions. There are several hypotheses as to what caused this difference. Potentially, physician do not easily recognise their own systems or personal limitations in the discharge process of an individual patient. It could suggest that patient-specific psychosocial-economic factors leading to readmission

risks that are known to treating providers are not easily picked up from chart review or scripted interview. It could suggest that fundamentally physicians place more onus on patients to self-advocate for care while the RN case managers emphasise the system providing support. Finally, there could be study biasing factors that lead to physician responses. Perhaps providers did not remember individual patients and chose no modifiable action as the simplest answer when queried. Or providers felt system issues were not modifiable and thus chose that as the correct answer.

Overall, the gap between providers' and patients' perspective of discharge is a potential contributing root cause to preventable readmissions, and we should incorporate more patient engagement into the discharge process. Possibilities to improve provider patient engagement might include provider training around discharge processing, improved patient education, more robust support services such as case management and social work. The need for physical therapy and poor functional status also correlated strongly with patient perceived readmission risk and serves as another marker to bring provider attention to high-risk patients for readmission.

Limitations

This study has several limitations. The data collection was part of an internal institutional review and questions of providers, and patients were not equivalent though both were asked if the admission was preventable. We only have provider perspectives for a subset of the patient population. Furthermore, the questions directed towards patients did not provide adequate opportunity for them to self-identify if their own actions might have contributed to readmission. This study included a small sample size from individual institution and does not represent a population at large. The discharge practices, services and patient populations practised at this particular institution may not be applicable across other institutions. This study is retrospective and cannot surmise the opinions of patients or providers at the time of discharge from their index admission. Further research with prospective data comparing readmitted with non-readmitted patient opinions at the time of their index admission discharge would be beneficial.

CONCLUSIONS AND FUTURE DIRECTIONS

This study sheds light on the dramatic gap between perceptions of patients and that of their discharging provider on causes of readmissions. Furthermore, it shows that patients with poorer functional status more often perceive the hospital as contributing to their readmission. It is a novel insight into readmitted patient's perceptions and potential gaps in provider communication. Further research into the generalisability of these findings at other institutions is needed.

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