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How Context Influences Hospital Readmissions from Skilled Nursing Facilities: A Rapid Ethnographic Study

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Abstract

Introduction—Improving hospital discharge processes and reducing adverse outcomes after hospital discharge to Skilled Nursing Facilities (SNFs) are gaining national recognition. However, little is known about how the social-contextual factors of hospitals and their affiliated SNFs may influence the discharge process and drive variations in patient outcomes. We sought to categorize contextual drivers that vary between high- and low-performing hospitals in older adults transition from hospitals to SNFs.

Design—To identify contextual drivers, we used a rapid ethnographic approach with interviews and direct observations of hospital and SNF clinicians involved in discharging patients. We conducted thematic analysis to categorize contextual factors and compare differences in high- and low-performing sites.

Setting and participants—We stratified hospitals on 30-day hospital readmission rates from SNFs and used convenience sampling to identify high- and low-performing sites and associated

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SNFs. The final sample included four hospitals (n=2 high performing, n=2 low performing) and affiliated SNFs (n=5) with 148 hours of observations.

Measures—Central themes related to how contextual factors influence variations in high- and low-performing hospitals.

Results—We identified three main contextual factors that differed across high- and low-performing hospitals and SNFs: team dynamics, patient characteristics, and organizational context. First, we observed high-quality communication, situational awareness, and shared mental models among team members in high-performing sites. Second, the types of patients cared for at high-performing hospitals had better insurance coverage that made it feasible for clinicians to place patients based on their needs instead of financial abilities. Third, at high-performing hospitals a more engaged staff in the transition process and building rapport with SNFs characterized smooth transitions from hospitals to SNFs.

Conclusions and Implications—Contextual factors distinguish high- and low- performing hospitals in transitions to SNF and can be used to develop interventions to reduce adverse outcomes in transitions.

Summary of article:

Team dynamics, patient characteristics, and organizational context play a role in hospital readmission rates, separating high- and low-performing hospitals and SNFs, and must be targeted to reduce adverse transitional outcomes.

Keywords

Context of care; Transitions of care; Older adults

INTRODUCTION

Improving hospital discharge processes and reducing adverse outcomes after hospital discharge have become part of a national agenda for quality improvement. [1-5] Transitions in care are critical time points for older patients who are especially vulnerable to poor transitional outcomes like re-hospitalizations. [6] Prior work demonstrated substantial variability in risk-adjusted readmission rates from SNF, however researchers have not been able to identify distinguishing hospital measured characteristics that reliably explain differences. [7-12] This may indicate that unmeasured factors play a larger role than currently measured characteristics in explaining outcomes.

Organizational culture plays a role in distinguishing levels of performance in risk-standardized mortality rates, and initiatives directed at improving organizational culture have demonstrated improvements in health outcomes.[13,14] These results indicate the considerable influence organizational context may have on outcomes, a well-recognized fact in the implementation science literature.[15, 16] However, whether similar dynamics explain performance when it comes to readmissions from SNFs is not well-described.

This study sought to categorize contextual drivers that vary between high- and low-performing hospitals in preparing older adults to transition from the hospital to a SNF, in the hopes of informing future interventions and policies that affect these transitions.

METHODS

We used rapid ethnographic methods[17], to generate rich data from observation of hospitals and SNF clinicans. Rapid ethnography is an approach used to capture the complexities of service provision, the social and cultural factors shaping healthcare use and delivery, and the nuanced practices of care provision in short time frames. The guiding question in the study was: "what contextual factors distinguish high- from low-performing hospital-SNF pairs in terms of hospital readmissions?" The Colorado Multiple Institutional Review Board approved the study. We followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines (see Appendix A for COREQ checklist).

Sample and Setting

We conducted site visits to four hospitals and five affiliated SNFs, using a convenience maximum variation sampling strategy to recruit high and low performing hospitals defined by their 30-day all-cause readmission rate from SNF. [18,19] The study team contacted directors of case management and hospitalists at 20 high and 20 low performing hospitals in both urban and rural areas to ask if the facility would be willing to host site visits. Among those willing to participate, we attempted to maximize variation in location, hospital size and ownership type. To identify hospital-SNF pairs, we asked hospitals to identify their most frequently used SNFs. After obtaining hospital-SNF observation permission, each site identified key stakeholders such as hospitalists, case managers and nurses to observe in the transition process.

Data Collection

Two to three trained qualitative researchers visited each hospital, and at least one affiliated SNF. To develop a rich description of the hospital-SNF discharge process we performed observations, interviews, and collected artifacts.

The observation tool (Appendix B) focused on two aspects of care transitions: 1) observing processes aligned with the Ideal Transitions of Care framework [20] (these observations about processes are described separately), and; 2) observing and probing on the context around these processes. Data was collected in teams when the hospital assigned the qualitative team to one department or individually when the hospital assigned them to different departments. At the end of the observations, team members met to reflect on their observations. SNF data collection followed similar approach except when some qualitative research team members stayed in the SNF, while one or two followed the SNF liaison back to the hospital to observe their interaction with patients and hospital staff. During these observations, we completed opportunistic interviews with participants to capture their experiences with discharging patients to SNFs or to provide additional insight into an observed interaction/process. Qualitative team members took notes during interviews with participants. Additionally, we collected artifacts such as discharge instructions, checklists for

staff training, and educational materials at each site. Finally, descriptive notes regarding other artifacts were recorded in the observational notes, including communication boards (i.e., white boards in the units or in patient's rooms).

We sought to maximize the data obtained by following the hospital discharge team through the patient discharge process, while asking probing questions for clarification and talking us through the discharge planning process. For example, staff could pull a discharge summary and walk us through how they use it in a specific process. This allowed the data collection process to be reflexive, as we built knowledge and understanding with our participants.

Data Analysis

For each hospital and SNF, all notes from observations, probing questions, and artifacts were de-identified, compiled, and managed in *Atlas.Ti (v7.5.11; Scientific Software Development, Berlin, Germany)*.. We used team-based, inductive analysis [21] to identify key themes describing contextual drivers that vary between high- and low-performing hospitals in preparing older adults to transition from the hospital to a SNF. Context was defined as patient, care team, or organizational factors that influence how participants carry out their decisions to discharge or admit patients. [22, 23] Through iterative team discussions a codebook was developed. Three qualitative analysts (ML, EG, CL) triple coded all transcripts, which involved inductive and deductive coding. Additionally, team members identified themes and noted variations between high and low performing sites using focused coding. Intercoder consensus was built through team discussion by resolving points of disagreement. When new codes emerged, they were discussed at team meetings to reach consensus on code labels and definitions until saturation was reached. Consistency of coding was regularly checked, and discrepancies were resolved through team discussion. [24] Analyses continued with emergent themes, categories, and conclusions. [25]

FINDINGS

Data was collected from August to October 2018 with 148 hours of total observation across four hospitals and five corresponding SNFs. Hospital and SNFs in the sample varied based on size, location, and ownership. Table 1 and 2 provide detailed information regarding the hospital and SNF characteristics. Table 3 provides additional hospital and SNF county level contextual factors. We found three main contextual themes that differed across high- and low-performing hospital-SNF pairs: team dynamics, patient characteristics, and organizational context.

Team Dynamics

The first major contextual factor that demonstrated the most difference between the high- and low-performing hospitals was team dynamics with two subthemes: a) communication quality; and b) development of high situational awareness and convergent shared mental models.

Communication Quality: There was a clear difference in the quality of communication between high- and low-performing sites, even though both used similar approaches to

enhance communication (i.e., huddles, rounds, and white boards). Inconsistent or delayed communication was a defining characteristic of low-performing sites. For example, some low-performing hospital bedside nurses did not attend the discharge huddles to update interdisciplinary team on patient status. While we also observed a nurse care manager repeatedly looking for providers to clarify incorrect information or searching for providers to provide information for discharge orders. The gaps in information and inability to find providers in a timely manner disrupted discharge workflow. Participants also highlighted a lack of communication between team members within a unit, such as, between a neurologist and physical/occupational therapists (PT/OT). Although patients would need to have a PT note documenting the patient's status for coordinating SNF care, these PT notes would not be signed until 5pm, long after the case managers had left, so staff were always working a day behind. Participants emphasized that gaps in communication not only cause costly delays but also might cause larger lapses in care.

Conversely, efficient communication flow that facilitated discussions about discharge planning was observed in high-performing hospitals. These included constant communication among teams, offices designed to foster easy communication, and collaboration between roles at interdisciplinary meetings. The staff stressed the importance of anticipating care, working in a collaborative and team-oriented environment. Additionally, at a high-performing hospital, we observed efficient communication among care coordinators sharing an office, as well as collaboration between roles in several contexts (Table 4, Theme 1A).

Situational Awareness and Shared Mental Models: We observed variation across sites in the degree of alignment and sharing of mental models for patient discharge, as well as degree of situational awareness. Shared Mental models require relevant input from team members or decision makers to be "on the same page" about a situation. [(26)] We learned that participants from the high- performing sites have similar expectations, roles and responsibilities, and shared goals of patient discharge process. However, in the low performing sites they seemed to be "trying to piece everything together" ad hoc.

High performing hospitals showed high situational awareness, where they created opportunities for better interactions, communication, and more convergent shared mental models among team members. For example, most updated their team members on patient status by writing clinically relevant information on the whiteboard. However, we observed frustration among these team members when colleagues did not update the whiteboard with appropriate information that would facilitate discharge planning. Similar efforts were not observed in low- performing hospitals. Further, efforts to create situational awareness among team members were not being implemented at low-performing hospitals. At the other high-performing site, the nurses discussed the importance of using morning huddles and whiteboards to facilitate discussions around patient assessment needs, status changes and post-acute care needs. Setting expectations early in the shift allowed individual clinicians to build a shared mental model around the patient's situation – including what tasks needed to be completed (and by whom), as well as provide directions about who to communicate information to during the process (Table 4, Theme 1B).

Patient Characteristics

We observed similarities and differences in patient characteristics across hospital-SNF pairs. While we were surprised to find that patient acuity level and geographic location did not seem to separate high- and low-performers, a main difference was how insurance coverage played a role in discharge planning.

Insurance Status: Participants emphasized that patient insurance status influenced placement location, duration, and options for patients in both the high- and low performing sites. However, the types of insurance patients had differed. For example, in high performing hospitals, they described “clean Medicare” patients, as opposed to patients with complex socio-economic needs — such as the homeless population — in low- performing sites. Discharge coordinators described patients with Medicare as easy to place than patients with Medicaid or other types of insurance. A unique case was a high- performing hospital, which cared for “snowbird” patients— those who flew to this state to avoid winter in their home state — and they described them as “placeable” patients with Medicare insurance (Table 4, Theme 2A).

Patient Acuity: We did not find differences in patient acuity across sites that could have been readily accessed using clinical databases. Rather, the level of patient acuity was similar across sites, and both mentioned that increasingly “sicker” and difficult to place patients were being referred to SNFs. SNFs at both high- and low-performing hospitals reported being asked to accept but denying admission to certain patients with expensive medications, significant wound care, a history of violent behaviors or crime. Additionally, SNFs mentioned that they are hesitant to accept patients with dementia, or those deemed a “flight risk” and might wander away from the facility (Table 4, Theme 2B).

Geographic Region Differences: Although we found differences in the context of the transition in urban and rural sites, this was not different across high and low-performing sites. For example, two rural hospitals (one high and one low-performing) had only two or three SNF choices, far fewer than urban hospitals (one high and one low-performing) who had more than sixteen options nearby (Table 4, Theme 2C).

Organizational Context

The third major theme is the organizational context, which we defined as the work environment in which care is delivered. Subthemes that appeared to influence discharge planning and patient placement in this context included staffing, the physical environment and unit milieu, as well as the relationship between the hospital and SNF.

Staffing: Across high- and low-performing sites, we observed similar types of staff involved in the discharge planning process or SNF admission process. All hospital sites had a discharge planner role (e.g., social worker, case manager, transition specialist), whereas SNFs had admission acceptors and SNF liaisons. Although these roles may differ in terms of who fills that role (e.g., registered nurses, social workers) and assigned tasks, staff in these roles interacted with other key staff, including PTs, OTs, bedside nurses, and physicians.

SNFs associated with high and low performing hospitals had a mix of ratings for staffing from Medicare Nursing Home Compare. (Table 2)

The notable differences between sites were variation in the level of engagement and availability of these staff. For example, at one of the high- performing sites the hospitalists were actively engaged in directing the discharge process, which seemed to have facilitated a smooth transition. However, hospitalist engagement in the discharge process was not observed in low-performing sites. The lower-performing sites relied heavily on PT/OT consults to make discharge decisions, which participants felt impeded timely patient discharges (since PTs and OTs weren't always available in a timely manner). While both high- and low-performing hospitals struggled with staff availability, a major difference was the ability of high-performing sites to flexibly deploy additional staff to fill gaps. At one lower performing hospital, the operations manager informed us that they were in the process of hiring additional case managers, which would help facilitate discharges (Table 4, Theme 3A).

Hospital Physical Layout and Unit Milieu.—The physical environment appeared to influence the social relationships and promote communication among team members at high-performing sites. In high-performing hospitals, we observed that some of the clinician and discharge planner offices/units were designed to foster efficient and friendly communication. For example, we observed a large open office for hospitalists and discharge planners that facilitated constructive communication. Co-location fostered discussions about discharge planning among other essential team dynamics. However, at low-performing sites we observed siloed or "touch and go" working spaces. Other than during morning rounds, staff only communicated with other discharge planners. There was no regular in-person continuous communication with other team members (Table 4, Theme 3B).

Relationship between Hospital and SNF: High-performing sites demonstrated rapport between hospital and SNF staff. SNF liaisons were flexible in their communication approach, able to work with the hospitals and maintained clear and open communication about their SNF capacity, which helped to facilitate trust amongst the staff. This was further strengthened by hospital staff who visited their patients while in the SNFs. In contrast, at low-performing sites, we observed a lack of flexibility, trust, and open communication between low performing hospitals and the SNFs. Multiple SNF staff explained that they did not fully trust information coming from low-performing hospitals about patients and had to verify it in-person before patient admission. For example, one SNF nurse explained felt that the hospitals do not communicate truthfully because they are looking out for their bottom line. While SNF liaisons worked as boundary spanners-- in both the hospital and SNF environment at both high- and low-performing sites-- no hospital staff visited the SNF at low-performing sites. (Table 4, Theme 3C)

DISCUSSION

In this qualitative study, we observed three major contextual drivers that influence patient transitions from hospital to SNFs: team dynamics, patient characteristics, and organizational context.

First, we observed high-quality communication, situational awareness and shared mental models among team members in the high-performing sites. Second, although there were similarities in patient acuity across sites, the types of patients cared for at high-performing hospitals had better insurance coverage that made it feasible for clinicians to place patients based on their needs instead of financial abilities. Third, high performing hospitals had a more engaged staff in the transitions process and rapport building that facilitated smooth transitions of care from hospitals to SNFs. These findings are important in explaining adverse outcome variations observed in hospital to SNF transitions.[18]

Prior studies explored readmissions from SNFs that are considered potentially avoidable from hospital and SNF perspectives. [27] However, none explored how patient characteristics, organizational context, and team dynamics influence variation in transitional outcomes from hospitals to SNFs. Most prior studies focused on understanding how hospital organizational practices improve on their readmission rates in general and not from SNFs. [13,14] To our knowledge this is the first research study to explore contextual factors that contribute to variation in high- and low- performing hospital to SNF transitions.

At the hospital level, prior work has identified several factors that contribute to readmission from SNFs (e.g. diagnostic errors, incomplete treatment).[28-30] At the SNF level, perspectives on avoidable readmissions focused on the ability of SNFs to detect early on whether they could manage patient level acuity at their sites. [28, 32-34] Although these hospital and SNF level factors can be focused on to improve readmission rates, focusing on these factors alone could lead to changes in practice without taking into account contextual factors. As identified in this research, there are contextual drivers inherently present in clinician practice environment that impact patient preparation for discharge to SNFs. Perhaps one of the most striking differences between the high- and low-performing sites is in the communication quality, situational awareness and shared mental models among team members. These are “low-hanging fruits” that low performing hospitals could focus on to improve patient outcomes.

Our results show the need to deliberately address contextual factors to improve hospital to SNF transitional care outcomes. First, organizational level interventions could enhance communication quality, situational awareness and shared mental models among team members involved in patient discharge to SNFs by providing effective teamwork training. [14, 35] This could be done by implementing effective communication techniques and setting clear expectations among team members. Second, policy-level interventions should consider the unintended consequences of Medicare and Medicaid reimbursement approaches that hinder patient SNF placement options. This would ensure equitable patient SNF placement based on medical need and remove the element of whether they are “placeable” or not based on insurance status. Third, efforts to build strong relationships and clinician engagement between hospital and SNF staff could yield better outcomes for patients. This could be operationalized by dedicating hospitalist or another clinician time to work as boundary spanners-linking organizational internal networks with external networks. Incorporating these approaches in transitional care from hospitals to SNFs could improve observed gaps in outcomes especially in readmission rates.

Our findings should be interpreted in the context from which they were derived. Although we were rigorous in our approach by using structured observational tool and coding schema among qualitative team members, our observation was conducted in a compressed time period. This might limit the types of observable behaviors in the patient discharge process. Furthermore, we relied on hospital performance level to identify participating sites. We did not have SNF- specific readmission rates that informed which SNFs we observed. A strength of the study was the experienced multidisciplinary research team (health services researcher, anthropologist, public health practitioner, hospitalists and geriatrician) that conducted, analyzed, and interpreted these research results. We also observed several roles and departments within sites to obtain diversity of perspectives. Additionally, we focused our study on observing transitions because we conducted interviews with clinicians, patients and caregivers in phase one of our work.

Conclusions and Implications

The results from our qualitative study describe several contextual factors that drive differences in high- and low- performing hospitals. They call for targeted interventions in improving patient outcomes by improving team dynamics, while building strong relationships between hospital and SNF staff. Additionally, they bring attention to the challenges of reimbursement models and impact on patient placement that could create unintended consequences.

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Appendices

Appendix A-

Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist

COREQ (Consolidated criteria for REporting Qualitative research) Checklist			
Topic	**Item No.**	**Guide Questions/Description**	**Reported on Page No.**
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/ facilitator	1	Which author/s conducted the interview or focus group?	Roman Ayele Chelsea Leonard Marcie Lee Emily Galenbeck
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	Roman Ayele, MPH, PhD Chelsea Leonard, PhD Marcie Lee, MPH
Occupation	3	What was their occupation at the time of the study?	Roman Ayele, MPH, PhD: Qualitative methodologist

COREQ (Consolidated criteria for REporting Qualitative research) Checklist			
Topic	**Item No.**	**Guide Questions/Description**	**Reported on Page No.**
			Chelsea Leonard, PhD: Qualitative methodologist Marcie Lee, MPH: Qualitative analyst Emily Galenbeck, BA: Professional research assistant
Gender	4	Was the researcher male or female?	All female
Experience and training	5	What experience or training did the researcher have?	Roman Ayele, MPH, PhD is a health services researcher with PhD level training in qualitative research and mixed methods with vast experience in various qualitative research methods. Chelsea Leonard, PhD is an anthropologist with PhD level training in qualitative research and mixed methods with vast experience in various qualitative research methods, with expertise in ethnography. Marcie Lee, MPH is a qualitative analyst with masters level training in qualitative research, and experience in conducting and analyzing various types of qualitative research. Emily Galenbeck, BA is a Professional research assistant with experience in qualitative research including data collection and data analysis
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	Except reaching out ahead of site visits to describe the goals of our project to directors of case management and hospitalists, our tem did not have any prior established relationship with participants.
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Participants were given consent form describing the goal of the research and the qualitative team introduced their name and role in the research upon meeting each participant
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Qualitative researchers described goals of research and overview of their site visit upon arrival to the sites Methods
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	We used rapid ethnographic methods to orient our data collection and analysis. (page 3, methods section, line 67) We also used the Ideal Transitions of Care Framework to guide our observation during transitions of care (Page 4, methods section, line 89)
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Participants were initially identified using purposive methods (high and low performing hospitals defined by their 30-day all-cause readmission rate from SNF) followed by convenience sampling where hospitals willing to participate were enrolled. Page 4, methods, line 75-83

COREQ (Consolidated criteria for REporting Qualitative research) Checklist			
Topic	**Item No.**	**Guide Questions/Description**	**Reported on Page No.**
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	Participants were approached face-to-face at each hospital and SNF (Page 4, Methods section, lines 85-108)
Sample size	12	How many participants were in the study?	N/A. We observed team based and individual participants during our qualitative observations. We did state the total number of observation hours across the four hospitals and 5 SNFs.
Non-participation	13	How many people refused to participate or dropped out? Reasons?	None refused to participate once the hospitals agreed to host the research team for a site visit.
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	Hospital and SNFs Methods section
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	Because it was a hospital and SNF setting, there were several bystanders while we followed the participants work process
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	We used quantitative data to identify high and low performing hospitals defined by their 30-day all-cause readmission rate from SNF Methods section, page 4, lines 75-77
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	We used the observation tool with prompts for data collection as attached in Table 1.
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	No
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	No
Field notes	20	Were field notes made during and/or after the inter view or focus group?	Field notes were collected during the observations and interview. Notes about artifacts were made in these descriptive field notes. Methods section page 4 and 5, lines 88-102
Duration	21	What was the duration of the interviews or focus group?	N/A Opportunistic interviews did not allow for documenting the length of interviews conducted. For example: a participant might have been asked various clarifying questions throughout the observation process that lasted for hours.
Data saturation	22	Was data saturation discussed?	Yes Methods section, page 5, line 122
Transcripts returned	23	Were transcripts returned to participants for comment and/or correction?	No
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	Three qualitative team members Methods section, page 5, line 117
Description of the coding tree	25	Did authors provide a description of the coding tree?	No

COREQ (Consolidated criteria for REporting Qualitative research) Checklist			
Topic	**Item No.**	**Guide Questions/Description**	**Reported on Page No.**
Derivation of themes	26	Were themes identified in advance or derived from the data?	Themes were derived inductively from the data Methods section, page 5, line 113
Software	27	What software, if applicable, was used to manage the data?	Atlas.Ti (v7.5.11; Scientific Software Development, Berlin, Germany) was used for data management Methods section, page 5, line 111-112
Participant checking	28	Did participants provide feedback on the findings?	No
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/ findings? Was each quotation identified? e.g. participant number	Yes. Table 3 provides themes, quotes and role of participant and their setting Page 25
Data and findings consistent	30	Was there consistency between the data presented and the findings?	yes
Clarity of major themes	31	Were major themes clearly presented in the findings?	Yes Findings section
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	Yes, sub themes are included in the findings section and table 3

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Appendix B.

Rapid ethnography observation checklist

Process	People	Probes
Decision to send to SNF First discussion of SNF Team communication Entering consults Conducting consults (e.g. SW SNF consult) Interdisciplinary rounds	Social Work Medical Provider PT/OT Nurses Discharge planner Others!	What is the need for SNF? Who brought it up? How are consults entered? What happens next? Can I observe? How do they communicate?
Patient Interactions First discussion of SNF Consults with medical staff Patient education & teach-back re: SNF, medications, self-care SNF selection	Social Work Medical Provider PT/OT Nurses Pharmacist Others!	Do they have templates? Who does the education? How is caregiver involved, if at all?
Information Transfer **Hospital → SNF** Orders to SNF Medication information SNF patient liaison interactions Hospital RN to SNF RN hand-off Hospital MD to SNF RN handoff Hospital MD to SNF MD handoff	Social Work Medical Provider SNF Nurse Hospital Nurses Pharmacist SNF Liaison Others!	How and when are orders sent? Who does that? Template? How do they send medication? What kind of information is sent? When? How do they know what SNF wants?
Patient Discharge Supplies and medications assembly Sending supplies and meds Final assessment before discharge by MD, RN	Social Work Medical Provider Nurse Transport	When do they put in orders v. when sent? How do they know SNF wants/capabilities? What time is patient transferred?

Process	People	Probes
Patient transport to SNF Medication information	person Front desk person Others!	

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Table 1.

Characteristics of hospitals in the sample

Hospital Contextual Factor	Hospital A	Hospital B	Hospital C	Hospital D
Hospital performance category *	Low	Low	High	High
Geographic location	East Coast	South	West Coast	Southeast
Urban vs. rural	Urban	Rural	Urban	Rural
Ownership type	Nonprofit	Nonprofit	Governmental/State	Nonprofit
Teaching status	Non-teaching	Teaching	Teaching	Non-teaching
Magnet status †	Yes	No	Yes	No
No. of SNFs in 25-mile radius of hospital ‡	19	20	47	78
No. of inpatient beds	552	669	617	687
FTE - Employees on Payroll **	4563	1927	7799	2264
Allowable Disproportionate Share Hospital (DSH) Adjustment Percentage **[a]	16%	10%	41%	6%
Net income (or loss) **	$108,078,915	−$3,776,358	$58,299,498	$77,336,650

Note:

* Hospital performance category 30-day readmission performance category = Defined using a previously published sample of US Veterans Affairs patients[11]

† Magnet status = Excellence nursing and healthy work environments indicator awarded by the American Nurses Credentialing Center

‡ Number of Skilled Nursing Facilities (SNFs) in a 25-mile radius of hospital is based on number of SNFs in the hospital zip code as identified using Center for Medicare and Medicaid Services (CMS) nursing home compare tool

** Determined from the 2015 CMS Cost Report File;

§ Total bed days = Total number of patient days (all payors)

‖ FTE Employees on Payroll is the average number of full-time equivalent employees per year

[a] Allowable Disproportionate Share Hospital (DSH) Adjustment Percentage = defined as the number of Medicare SSI inpatient days from total Medicare inpatient days plus the number of Medicaid, non-Medicare inpatient days from total inpatient days. Indicator of being a safety net hospital, with higher percentage reflecting higher Medicare and Medicaid inpatient caseloads.

Table 2.

Skilled Nursing Facility (SNF) characteristics and Medicare Nursing Home Compare ratings

SNF Contextual Factor	SNF A	SNF B	SNF C1	SNF C2	SNF D
Affiliated Hospital ID	Hospital A	Hospital B	Hospital C	Hospital D	Hospital ID
Ownership status	For-profit	For-profit	For-profit	For-profit	Non-profit
Number of beds	172	174	59	177	120
Overall star-rating[ǂ]	3	4	5	3	2
Staff star-rating[ǂ]	2	4	5	4	1
Percentage of short-stay residents who were re-hospitalized after a nursing home admission[ǂ]	22	21.8	18.7	16.6	22.2
Percentage of short-stay residents who have had an outpatient emergency department visit[ǂ]	12	5.6	9.2	10.2	5.4
Percentage of short-stay residents who improved in their ability to move around on their own[ǂ]	58.1	72.5	71.8	60	57.9
Rate of successful return to home and community from a SNF compared to national average (7.3%)[ǂ]	Same as national	Same as national	Better than national	Worse than national	Better than national
Rate of potentially preventable hospital readmissions 30 days after discharge from a SNF compared to national average (49.2%)[ǂ]	Same as national	Same as national	Same as national	Same as national	Worse than national

Note:

[ǂ]Data identified from 2018 Medicare Nursing Home Compare data.

Table 3.

Description of county demographics for each hospital from the US Census Community Survey

County Contextual Factor	County A	County B	County C	County D
Hospital ID	Hospital A	Hospital B	Hospital C	Hospital D
Hospital performance category	Low	Low	High	High
County population (N)	18,230	413,210	1,552,058	974,996
Race/Ethnicity (% of county)				
White	93.4	59.2	63	82.6
Black	1.8	36.1	10.9	11.1
Other	4.8	38.2	25.4	6.3
Percentage of population over 65	21	16.2	14.1	24.8
Percentage of persons with a disability	9.8	9.7	8.2	9.9
Percentage of person in poverty†	10.1	20.8	14.35	11.7

Note:

*Hospital performance category 30-day readmission performance category = Defined using a previously published sample of US Veterans Affairs patients[11]

†Note: Definition of poverty varies by state. Data source: https://www.census.gov/programs-surveys/acs

Table 4:

Illustrative Excerpt from Observation Notes

Themes	Excerpt from Observation Notes	Site
1.Team dynamics		
1.A. *Communication Quality*	They moved them in together to improve communication, and they all pipe in that it seems to have worked because now they can overhear things.	High performing (HP) hospital
	A provider comes in and the nurse care manager explains to them why we're there. A little annoyed, he asks us if we could start having the physical therapists (PTs) write down their recommendations before 5 pm. He seems to think that will solve a lot of the delays for patient discharges. The nurse care manager seems to want to calm him down. He states that it'll be an easy fix if the PTs were to write down their assessment on the dry-erase board, discharges will happen faster. He leaves the room after communicating with the nurse care manager about a patient that is medically ready to go out.	Low performing (LP) hospital
1.B. Situational Awareness and Shared Mental Models	Nurse states that the morning huddles really facilitate the reassessments and changes for discharges. The nurses and social workers are on the floor with patients. They are very collaborative and team-oriented. Everyone knows the expectations.	HP hospital
	They tell me that they coordinate with all services- everyone who is involved in a patient's case. They try to piece everything together. In the morning meeting, they try to get the care team to coordinate. This facilitates getting people out of the hospital. In this meeting they give nurses a list of things to follow up on. Physical therapy also comes to morning meetings. The hospitalist manages all services consulting on a patient's condition.	LP Hospital
2.Patient characteristics		
2.A. Insurance Status	It has been mentioned or suggested several times that currently the feel is that patients need to get in and get out quickly, and that they feel pressure to transition patients out of the SNF. The liaison explains to us that Medicare pays 100% for the first 20 days of care. They then pay 80% for days 20-100.	HP SNF
	Insurance policies- when trying to approve short term care, insurance wants to know the long-term plan. It can be hard to come up with a long-term plan from an acute care hospital where patient stays are short. Some patients get stuck – they had one patient tuck in the hospital for 90 days (a mental health patient). The patient was affiliated with a mental health agency- has dementia and schizophrenia-in hospital they found out he has cancer. He is unable to make decisions for himself and has no next of kin. The protocol is for two physicians to make decisions on treatment.	LP Hospital
2.B. Patient Acuity	The SNF liaison emphasizes that she tries to not overtax the staff. Admissions are dependent on the days. They have a 172-patient capacity. Currently have 157 patients and their average is 155-160 patients. They are able to take in patients with a little higher acuity. They have 2 full time physicians, 1 NP, Nurses, LPNs, and RN assistants.	LP SNF
Most patients at the SNF are seen 2-3 days a week by a provider, however, the SNFs are accepting more medically complex patients and therefore need more coverage. This means they see nurse practitioners when docs are too busy. Cardiology docs are the hardest to get to come in.	HP SNF	
2.C. Geographic Region Differences	The liaison estimates that there are approximately 16 SNFs within a 2-mile radius.	HP SNF
3.Organizational Context		

Themes	Excerpt from Observation Notes	Site
3.A. *Staffing*	We meet [hospital physician] again. He is having a hard time reaching the d/c planner on the floor… He states that discharge planning is always understaffed.	HP hospital
	SNFs dictate when they can admit patients based on their staffing and not based on patient needs and if they are ready to be discharged from hospitals. Some SNFs are forward in saying that they can't admit because they had more than five admissions in one day.	LP hospital
3.B. Hospital Physical Layout and Unit Milieu.	[General observations in open area] the team continues to update each other on their assigned patients. While doing this, they rant and have fun. There are a lot of laughs. They talk about a CNA [Certified Nursing Assistant] who is very detailed oriented and potentially saved a patient's life.	HP Hospital
	The liaison and admissions person work very closely, they seem to have a very friendly relationship.	LP Hospital
3.C. *Relationship between Hospital and SNF*	The SNF liaison receives up to 30 referrals a day but may not read the full referral if she sees any red flags at the beginning. She can work from home. She knows what questions to ask about patients. Sometimes she can't depend on the referral paperwork, she knows that some hospitals don't give good information, and she must see those patients. The first things she looks at are age and payor source.	LP SNF
	What makes a good transition? Understanding a lot going on at the hospital and that there may be set backs. When hospital thinks they're going to be ready to transfer, ½ the people don't come or come at a different time. There is a lot of uncertainty—there are a lot of possible setbacks so it's more on us to be ready. [High performing hospital-name redacted] has been pretty clear and transparent with the facility. Through conversations, check the clinical needs, rehab potential, social/behavioral situation to find the best picture. [High performing hospital-name redacted] is the best at providing a picture.	HP hospital
	Nurse states that "you don't know who is telling the truth, they're [hospitals] all looking out for their bottom line."	LP SNF

** SNFs associated with low performing hospitals are denoted as low performing SNFs in this table and throughout the manuscript for ease of description. Hospital performance level was not used to categorize sites.