ORIGINAL ARTICLE

Hospital readmission rates in Medicare

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Abstract

Hospital readmissions are the focus of many recent efforts to improve quality and reduce spending under the Affordable Care Act (ACA). We examined variations in Medicare readmission rates by hospital characteristics (*e.g.*, type, size, utilization) and Medicare patient mix (*i.e.*, share of dual eligible beneficiaries, share of patients under 65 years of age, health status). Using 2010 data from 3,543 short-stay Medicare-certified hospitals, readmission rates were higher for hospitals that served a greater share of patients who were dual-eligible and less healthy; and larger hospitals and hospitals with higher occupancy rates even after controlling for patient mix.

Key words

Readmission, Medicare, Public use file

1 Introduction

1.1 Motivation

Readmission to a hospital increases health care costs and has implications for the quality of care. Hospital surgical-quality measures, for example, are correlated with readmission rates [1]. In 2010, one in eight Medicare patients were readmitted to the hospital within 30 days of being released after surgery, while one in six patients returned to the hospital within a month of leaving the hospital after receiving medical care [2]. The Affordable Care Act (ACA) includes a series of potential cost-saving measures for Medicare including changes in health care financing targeted at reducing the number of avoidable hospital readmissions [3]. Reducing the number of (avoidable) hospital readmissions is expected to improve the quality of care for beneficiaries and save about $8.2 billion over ten years through 2019 [4].

The Centers for Medicare & Medicaid Services (CMS) created the Hospital Readmissions Reduction Program (HRRP) to reduce payments to acute care hospitals with excess readmissions, effective October 1, 2012 [3]. The HRRP defines readmission as an admission to a short-stay (acute care) hospital within 30 days of a discharge. The readmissions are applied to the hospital of the initial (index) stay and include readmissions to other hospitals. Payments for hospitals with excess readmission ratios (a measure of a hospital's performance compared to the national average for the hospital's set of patients with the condition) for diagnoses of Acute Myocardial Infarction (AMI), Heart Failure (HF) and Pneumonia (PN) will be subject to the "readmission payment adjustment" under the program. The excess readmission ratio adjusts for factors such as patient demographic characteristics, comorbidities, and patient frailty [3]. The readmission rates for

Medicare fee-for-service (FFS) beneficiaries during 2007-2009 were 19.9%, 24.8%, and 18.3% for AMI, HF, and PN, respectively [5]. In a recent study, Gerhardt and colleagues found that readmission rates, which were stable at about 19% between 2007 and 2011, declined to 18.4% in 2012 among Medicare FFS patients without being able to attribute the decline to the ongoing payment and quality programs [6].

The purpose of this study is to examine variation in Medicare readmission rates using hospital-level characteristics (*e.g.*, type, size, utilization) and patient mix (*e.g.*, share of dual eligible beneficiaries, share of patients under 65 years of age, average risk score). This study contributes to the literature by examining the effects of a mix of hospital and patient characteristics (rather than focusing on a specific diagnosis or condition) on hospital readmission rates using newly-available national (aggregated) Medicare FFS data linked with hospital characteristics from the American Medical Association (AMA).

1.2 Background

Almost 20% of Medicare beneficiaries are readmitted within 30 days of discharge costing about $15 billion annually [7-9], of which about $12 billion is potentially avoidable [10]. Certain patient characteristics, such as demographic factors, medical history, and diseases and comorbidities, have been found to increase the likelihood of a readmission [7, 11]. Readmissions are costly, especially for patients with multiple chronic conditions [12]. They lower the quality of inpatient care [7] and result in inefficient use of health care resources if the reason for readmission is early discharge [13].

Dual eligible beneficiaries (low income and disabled beneficiaries covered by both Medicare and Medicaid) have been found to have significantly higher readmission rates than those with only Medicare coverage [14]. Corrigan and Martin found that individuals covered by Medicare and Medicaid (compared to private insurers) are more likely to be readmitted within a year [15]. They also found that the stage of disease, index-episode length of stay, being discharged by an internist rather than a surgeon, and the number of prior hospitalizations are positively correlated with readmission rates, whereas physician's age and being discharged to a nursing home (instead of a community setting) were negatively correlated. Using interview data from general medicine patients at six academic medical centers, Hasan and colleagues found that having Medicare as primary payer (compared to Medicaid and self-pay), number of prior admissions in the last year, number of comorbidities (measured by Charlson index), having index-admission length of stay greater than two days, being married, and having a regular physician were associated with higher readmission rates [7]. The authors argue that (1) Medicare patients are older on average, (2) patients with spouses may be discharged at a frail state, and (3) having a regular physician may indicate illnesses not captured by other information.

There is also evidence that a hospital's patient characteristics affect readmission rates. In particular, the highest rates of readmission are shown to be among those with heart failure, pneumonia and chronic obstructive pulmonary disease (COPD) conditions at discharge [9]. Bravata and colleagues report high rates of readmissions for stroke patients [16]. Another study found that heart attack, pneumonia, and congestive heart failure are three key diagnoses that require special attention due to higher than average readmission rates [17]. Allaudeen and colleagues found that having comorbidities (congestive heart failure, renal disease, cancer) is positively associated with readmissions [8]. Rau identified heart failure as the most common condition affecting readmissions, with hospitals serving the poorest Medicare patients being nearly three times as likely as others to have substantially high readmission rates for this condition [10]. Poorer patients are also likely to have challenges with follow-up care upon discharge such as not being able to afford their medications and attending check-up doctor visits [18]. Rau argues that individuals who cannot afford prescribed medications wound up in the hospital repeatedly for not taking medications [10]. Also, lifestyle choices after discharge, such as food choices and physical activities, strongly influence how well patients recover, and thus often are associated with readmissions [10].

Hospitals' actions also contribute to readmission rates. Fisher and colleagues analyzed readmission rates for Medicare patients in Boston and New Haven, and attributed the association between the availability of hospital beds and overall hospital discharge rates to variations observed in the readmission rates for these patients [19]. A more recent study on the

impact of utilization on readmission rate for surgery patients from a U.S. teaching hospital found that "patients who are discharged from a highly utilized post-operative unit are more likely to be readmitted within 72 hours" [13]. More specifically, the study found that "each additional bed utilized at time of discharge increases the odds of readmission on average by 0.35%". Joynt and Jha examined readmission rates among those with heart failure and found that public hospitals versus nonprofit, smaller hospitals, those without cardiac services and those in the lowest quartile of nursing staff were associated with higher readmission rates [20].

2 Method

2.1 Data sources

Study analyses use the newly-available CMS 2010 Institutional Provider and Beneficiary Summary (IPBS) Public Use File (PUF) which summarizes utilization for each Medicare-certified hospital for the Medicare FFS population including disaggregation by age group, race, dual-eligibility status, health status (*i.e.*, average risk score) as well as total Medicare payments, admissions, readmissions, and covered days in 2010 [21]. To analyze readmissions, we extracted data for 3,543 short-stay hospitals that served Medicare beneficiaries in 2010. These are the acute care hospitals that are targeted in the CMS HRRP. Analyses also included information on hospital characteristics from the American Hospital Association (AHA) Annual Survey: (1) type of hospital (teaching *vs.* non-teaching); (2) type of authority (Government (non-federal), government (federal), not-for-profit, and for-profit); and (3) total number of beds. The 2010 IPBS PUF also contains data from Critical Access Hospitals (CAHs) which we exclude from the analyses. These hospitals are paid on a cost basis and are not subject to the CMS Hospital Readmission Reduction Program.

2.2 Measures

We analyze the determinants of readmissions for all acute care hospitals that served Medicare FFS beneficiaries. Readmission rates are defined as the ratio of 30-day readmissions (including readmissions to other hospitals) over (index) admissions for each hospital. Average length of stay for each hospital is defined using the number of Medicare-covered days of care for acute care admissions and the number of covered stays for acute care admissions. We calculate the percentage of dual-eligible Medicare beneficiaries (covered by Medicare and Medicaid), and the percentage of Medicare beneficiaries under 65 years of age (as individuals with a disability receiving Social Security Disability Insurance and those diagnosed with End-Stage Renal Disease [ESRD] are eligible for Medicare benefits regardless of age). However, these data pertain to all services provided at the hospitals (including short-term acute care, outpatient and rehabilitation services, and psychiatric care) rather than only inpatient services.

The data also include the average hierarchical condition category (HCC) risk score of Medicare beneficiaries served by each hospital. The HCC risk score comes from CMS' risk adjustment model, which is used to adjust payments for Part C (Medicare Advantage) plans. The model assigns a risk score to each Medicare beneficiary based on his/her Medicare FFS claims history. The scores are normalized so that the average risk score is 1.0 [25] Beneficiaries with higher risk scores are relatively more costly (and less healthy) compared to beneficiaries with lower scores. We use average risk score in our analyses to control for average health status of patients at each hospital as hospitals that care for patients that need more intensive care might have higher readmission rates. As discussed above, hospital characteristics may have an effect on readmission rates. We include teaching status since teaching hospitals may be less focused on decreasing readmissions, due to their emphasis on teaching and the high turnover of resident physicians. Addressed by risk scores above, teaching hospitals are also likely to treat patients with more complex conditions, at higher levels of intensity that may be more vulnerable to readmission. For profit hospitals, on the other hand, may be more aggressively focused on decreasing readmissions.

2.3 Regression model

In this study we first provide a descriptive analysis of readmission rates by various hospital characteristics. Then, we present a multivariate regression analysis that includes the factors above that might explain the variation in readmission rates. The regression model is shown as:

$$Readmission_i = \beta_0 + \sum_{j=1}^{3} \beta_j\ Type_{ij} + \beta_4 Teaching_i + \beta_5 Dual_i + \beta_6 Risk_i + \beta_7 LOS_i + \beta_8 Occupancy_i + \sum_{j=9}^{12} \beta_j\ Size_{ij} + \varepsilon_i \quad (1)$$

where i is an index for each hospital, $Readmission_i$ is the readmission rate at hospital i, $Type_{ij}$ refers to the ownership structure of hospital i (*i.e.*, local government, for-profit, and non-profit), $Teaching_i$ is a dummy variable that is equal to 1 if hospital i is a teaching hospital and 0 otherwise, $Dual_i$ is the share of the patients who are dual eligible at hospital i, $Risk_i$ is the average risk score for patients at hospital i, LOS_i is the average length of stay at hospital i, $Occupancy_i$ is the average occupancy rate at hospital i, $Size_{ij}$ is the size of the hospital in terms of total number of beds categorized into 5 as < 25, 25-99, 100-249, 250-499, and more than 500 beds, and ε_i is the unobserved random error term for hospital i.

To account for geographic variation in the utilization of services among Medicare FFS beneficiaries [22-24], we estimate the model with hospital referral region (HRR) fixed effects which allow us to control for other sources of regional differences that are not included explicitly in our analysis. We also use heteroskedasticity-robust standard errors in our estimation.

3 Results

3.1 Descriptive findings

In 2010, CMS made payments of about $18.4 billion for readmissions which amounted to 11% of total Medicare payments (*i.e.*, payments for index admissions plus payments for readmissions) made to the hospitals (see Table 1). Beneficiaries institutionalized at short-stay hospitals had an average risk score of 1.4 in 2010, ranging from 0.75 at hospitals serving patients with low risk scores to 4.5 at hospitals serving high risk score patients.

Table 1. Descriptive statistics on Medicare-eligible hospitals

Variable	Value
Hospitals	3,542
Admissions (A)	10,792,376
Readmissions (B)	2,059,350
Readmission Rate (B/A)	19.2%
Actual Payment [1] (C)	$148,302,760,164
Readmission Payment [1] (D)	$18,395,896,963
% of Readmission Payments (D/(C+D))	11.0%
Average Risk Score	1.405

Note. The CMS 2010 IPBS PUF also includes payments associated with critical access hospitals, unknown hospitals, and other types of institutions which are excluded from the study.

Overall, the readmission rate among Medicare FFS beneficiaries in the U.S. was 19.2% in 2010 (see Table 2). Disaggregating average readmission rates by four types of hospital ownership and authority (local government, *e.g.*, state, city; non-profit; for-profit; and federal government, *e.g.*, Veterans Affairs, Navy) and without controlling for any other factors, our findings show that readmission rates are lowest at federal hospitals (17.1%). For all other types of ownership, the average readmission rate is about 19.2%-19.3%. With respect to teaching status, the average readmission rate for teaching hospitals is higher than for non-teaching hospitals (19.8% *vs.* 18.7%).

Table 2. Readmission rates by hospital characteristics

Category	Type	Number of Hospitals	Readmission Rate (%)
Authority	Local Government	547	19.3
	Non-profit	2,062	19.2
	For-profit	787	19.2
	Federal Government	26	17.1
	Unknown	121	18.0
Teaching status	Non-teaching	2,558	18.7
	Teaching	864	19.8
	Unknown	121	18.0
Dual share	0-9.9%	171	16.4
	10%-24.9%	1,591	18.3
	25%-49.9%	1,410	20.0
	50%-74.9%	258	23.2
	75%-100%	84	25.7
	Unknown	29	11.9
Under 65 share	0-9.9%	175	16.9
	10%-24.9%	2,432	18.7
	25%-49.9%	852	21.4
	50%-74.9%	46	25.5
	75%-100%	14	17.7
	Unknown	24	0.0
Average risk score	0.75-1.24	948	16.3
	1.25-1.49	1,622	18.6
	1.5-4.5	972	21.3
Length of stay (days)	1-3	674	16.5
	4-6	2,588	19.2
	7-8	176	22.3
	9-38	68	19.7
	Unknown	37	0.0
Occupancy rate	0-9.9%	477	18.1
	10%-19.9%	1,042	18.9
	20%-39.9%	1,746	19.2
	40%-100%	134	19.7
	Unknown	144	18.0
Size (beds)	0-24	167	12.0
	25-99	954	17.8
	100-249	1,267	18.8
	250-499	753	19.1
	500-2,500	276	20.2
	Unknown	126	18.0
Total		3,542	19.2

The dual eligible population has limited income/assets and is known as a diverse, high-cost group which includes beneficiaries with multiple chronic conditions [26]. To examine whether readmission rates differ by how often a hospital serves dual eligible beneficiaries, we calculated the share of (unique) dual eligible beneficiaries utilizing the services of each hospital. These analyses found that readmission rates increased with the share of dual eligible beneficiaries served at

the hospitals. Hospitals with a dual eligible share of less than 10% had an average readmission rate of 16.4%, increasing to 18.3%, 20.0%, 23.2%, and 25.7% for hospitals with dual eligible shares of 10%-24.9%, 25%-49.9%, 50%-74.9%, and 75%-100%, respectively.

Considering hospitals for which the percentage of patients served under 65 was < 10%, the average readmission rate was 16.9%, increasing to 18.7%, 21.4%, and 25.5% for hospitals with shares of patients served under 65 years of age of 10%-24.9%, 25%-49.9%, and 50%-74.9%, respectively. There are only 14 hospitals with shares of patients served under 65 greater than 75%, and their average readmission rate is 17.7%.

We examined the average length of stay (total Medicare covered days divided by total number of stays) for all admissions (including readmissions) with 1-3, 4-6, 7-8, and 9 or more days of care. As summarized in Table 2, there are no clear patterns in readmission rates with respect to length of stay (*i.e.*, 16.5%, 22.3%, and 19.7% for average length of stay of 1-3 days, 4-6 days, and 9 days or more, respectively).

Average readmission rates increased with occupancy rate (number of covered days for Medicare beneficiaries divided by the number of total hospital beds available for a year) from about 18.1% for hospitals with the lowest occupancy rate (< 10%) to close to 20% for hospitals with the highest occupancy rates (> 40%). We calculated occupancy rates using information only from Medicare beneficiaries served at the hospital even though hospitals are likely to care for other patients covered by other types of insurance. Average readmission rates increased significantly with hospital size (*i.e.*, total number of medical and surgical beds), from 12% for hospitals with < 25 beds to over 20% for hospitals with 500-2,500 beds.

Consistent with the literature, readmission rates increased with the average risk scores of the Medicare beneficiaries served by the hospitals. Hospitals that served Medicare beneficiaries with average risk scores of 0.75-1.24 had average readmission rates of 16.3% compared to 18.6% for those with average risk scores of 1.25-1.49, and 21.3% for those with average risk scores above 1.5.

Table 3 provides the correlations between the explanatory variables used in the regression analysis (next section). We find, for example, that there is a positive and significant correlation between average risk score and percentage of dual eligibles and between percentage of patients under 65 and percentage of dual eligible patients.

Table 3. Correlation matrix for explanatory variables

	Hospital type	**Teaching hospital**	**Percent of dual eligibles**	**Percent of under 65 years of age**	**Average risk score**	**Average length of stay**	**Average occupancy rate**	**Number of beds**
Hospital type	1.000							
Teaching hospital	-0.128***	1.000						
Percent of dual eligibles	-0.090***	0.050***	1.000					
Percent of under 65 years of age	-0.058***	0.097***	0.670***	1.000				
Average risk score	0.104***	0.180***	0.506***	0.327***	1.000			
Average length of stay	-0.111***	0.268***	0.273***	0.246***	0.401***	1.000		
Average occupancy rate	0.045***	0.040**	-0.135***	-0.218***	0.080***	0.217***	1.000	
Number of beds	-0.089***	0.534***	0.023	0.030*	0.265***	0.378***	0.088***	1.000

Note. ***: significant at 0.01; **: significant at 0.05; *: significant at 0.1.

3.2 Regression results

Table 4 shows results of regression analyses. With respect to the effect of type of ownership and authority, our analyses did not find significant differences between hospitals of different types. Similarly, there were no significant differences between teaching and non-teaching hospitals in terms of readmission rates.

Table 4. Regression results

Explanatory variable	Coefficient
Type: Local government	-0.361
Type: Non-profit	-0.914
Type: For-profit	-1.279
Type: Federal government	(excluded)
Teaching status: Teaching	-0.0369
Teaching status: Non-teaching	(excluded)
Percent of dual eligibles	0.0892***
Percent of under 65 years of age	0.0197
Average risk score	4.873***
Average length of stay	-0.120
Occupancy rate	0.0514***
Size: 0-24 beds	(excluded)
Size: 25-99 beds	2.897***
Size: 100-249 beds	3.301***
Size: 250-499 beds	3.354***
Size: 500-2,500 beds	4.108***
Constant	5.878***
HRR fixed effects	Yes
N	3,302
Adjusted R-squared	0.266
F-test	116.4

Note. ***: $p < .001$; **: $p < .01$; *: $p < .05$; Dependent variable: Readmission rate.

Our analyses show that the mix of beneficiaries served at the hospitals affects readmission rates. For example, consistent with Anderson and Steinberg [14], readmission rates increased by about 0.09 percentage points for each percentage point increase in the share of dual eligible Medicare patients. Similarly, the effect of average risk scores on readmission rates is significant and relatively large: One unit increase in average risk score (*e.g.*, increase from 1 to 2) increases the readmission rate by about 4.9 percentage points. The percentage of beneficiaries under the age of 65 is also positively correlated with readmission rates, but the estimate is not statistically significant.

Average length of stay is negatively correlated with readmission rates, but is not statistically significant. However, hospital occupancy rates and hospital size have strong implications for readmission rates. One percentage point increase in the average occupancy rate increases the readmission rate by 0.05 percentage points. Consistent with the literature [6], readmission rates also increased with hospital size. The difference between the largest and smallest hospitals is at least 4.1 percentage points after controlling for all other factors in the model.

4 Discussion

The HRRP was designed to reduce readmissions by imposing financial penalties on hospitals for high readmission rates. In the HRRP, each hospital's readmission performance is "compared to the national average for the hospital's set of

patients with that applicable condition (AMI, HF, and PN)" with adjustments "for factors that are clinically relevant including patient demographic characteristics, comorbidities, and patient frailty" [3]. Our analyses rely on data from 2010, before the October 1, 2012 effective date of the HRRP with its incentives to reduce readmissions. However, recent studies suggest that differences between hospitals are likely related to patients' case-mix and socio-economic status, with large hospitals, teaching hospitals, and safety net hospitals more likely than other hospitals to receive reductions in payment under the program [27].

This study shows that readmission rates increased with hospital size and occupancy rate (a variable not investigated extensively in the literature) even after controlling for patient case-mix. It could be that coordination of care is more difficult at larger institutions or that large hospitals serve sicker or more complex cases which are not captured by any of the patient characteristics in our model. Also, it is possible that hospitals with higher occupancy rates are more likely to discharge patients to free beds for future patients. Thus, large hospitals and hospitals with high occupancy rates may experience higher readmissions and greater associated financial penalties than small hospitals and hospitals with low occupancy rates.

In fact, other CMS incentives to improve quality of care and lower health care costs provide slightly different incentives to health care providers. In its Bundled Payments for Care Improvement (BPCI) Initiative, CMS pays for episodes of care and encourages hospitals and physicians to coordinate care around a hospitalization including the post-discharge window [28]. These models encourage hospitals to save costs by reducing length of stay and shifting some of the care to post-acute care settings (*e.g*., skilled nursing facilities, home health care). In a similar initiative, The Commonwealth Fund supports the State Action on Avoidable Rehospitalizations (STAAR) in which hospitals join "cross-continuum teams" to coordinate with nursing homes, home health agencies, and physicians to educate patients, follow-up with patients after discharge, and work with universal discharge or transfer forms to reduce avoidable readmissions [29].

In addition to hospital and delivery system features, our study findings show that the mix of Medicare patients served at hospitals and their burden of chronic conditions all affect readmission rates. These findings are consistent with other research that suggests that patient frailty and the reason for the index hospitalization are important predictors of rehospitalization [5]. The multi-morbidity and complex medical conditions of frail patients who are rehospitalized further complicate efforts to prevent their readmission, calling for broad-based interventions to avoid readmissions.

This study has several limitations. Importantly, some information in the data pertains to the care of Medicare beneficiaries in the hospital as a whole, not only in the inpatient setting. The share of dual eligible beneficiaries, average number of chronic conditions, and average risk score are calculated for all types of services provided at the hospital including inpatient, outpatient, and rehabilitation services, and psychiatric care. Hence, these measures describe beneficiaries served throughout the hospital rather than from inpatient admissions alone. Also, occupancy rate is estimated based only on total covered days of care provided to Medicare FFS beneficiaries even though hospitals serve patients other than Medicare FFS. Although actual occupancy rates are probably higher than our estimates, our findings simply show a positive relationship between occupancy rates based on care provided to Medicare FFS beneficiaries and readmission rates. Finally, we cannot include length of stay separately for index admissions and readmissions as they are aggregated in the data.

Also, the CMS 2010 IPBS PUF is a de-identified data set suppressing information for institutions that served a very small number of beneficiaries (< 11) and also information (*i.e*., individual variables) that are based on a small number of beneficiaries (< 11). However, given the size of the hospitals in this file, only about 0.01% of the total admissions (out of a total of 10,792,959 admissions to acute care hospitals and CAHs in 2010) is suppressed [21].

The CMS 2010 IPBS PUF also includes detailed data on the number of beneficiaries meeting the chronic condition algorithms for 26 chronic illnesses that utilize the services of each hospital. As commonly discussed in the literature, chronic conditions are strong drivers of readmissions. However, such data (or a subset of the 26 variables) are missing for many hospitals due to de-identification complicating the calculation of average number of chronic conditions for

beneficiaries served at each hospital. Our estimates of average number of chronic conditions and average risk score, which we include in the analyses, are highly correlated (correlation coefficient of 0.81). Analyses using average number of chronic conditions in place of average risk score produced very similar results. We cannot control for racial/ethnic mix explicitly (due to data availability), but our study accounts for that, at least partially, due to the relationship between racial/ethnic mix and the factors included in the model (*e.g.*, average risk score).

Finally, data used for these analyses do not include information on hospital discharge planning, local non-hospital resources available to patients, or use of delivery approaches such as medical homes, community care coordination strategies, or interventions to manage transitions from hospital care. These are all likely to impact readmission rates. Studies currently underway at CMS and private health systems should shed light on these issues.

5 Conclusion

This study shows that there is a negative correlation between the health of patients served at the hospitals and readmission rates as commonly discussed in the literature. That is, patients with poor health status and complex conditions are most likely to experience readmissions. The study also shows that hospital size and occupancy rate are associated with higher readmission rates. Our analysis contributes to the literature on hospital readmission rates by including a mix of hospital and patient characteristics (rather than focusing on a specific diagnosis or condition), and by emphasizing major factors correlated with readmission rates using national but aggregated Medicare FFS data linked with hospital characteristics from the AMA.

Our findings underscore the complex relationships involving patient vulnerability, hospital organizational processes and capacity, and readmissions processes. Further research is needed to understand dynamics such as differences in frequency of readmissions across and within hospital types, typically in the hospitals serving the highest percentages of medically complex, vulnerable Medicare patients. It is likely that some hospitals will be better able to manage readmissions with specific interventions than others. Identifying "what works" in which settings, with which patients is critical to understanding care transitions and readmissions. Finally, it will be important to monitor the impact of penalties on hospitals and their capacity for discharge planning and care of frail and vulnerable patients to ensure that HRRP penalties do not exacerbate systemic weaknesses in specific hospitals or facility types with unintended consequences for quality and availability of patient care.

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