Reducing Hospital Readmissions for Vulnerable Patient Populations: Policy Concerns and Interventions

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Abstract: Hospital readmissions present a significant financial burden to Medicare payment systems and indicate poor health outcomes for patients following hospitalization. The Medicare Hospital Readmissions Reduction Program (HRRP) has been implemented as a measure to reduce readmissions and improve the quality of care provided by hospitals. In order to incentivize changes in care processes, the HRRP employs the use of financial penalties to reduce Medicare payments to hospitals with excessive readmissions. While the implementation of this penalty program has led to macro-level improvements in readmission rates across the country, hospitals serving the most socioeconomically disadvantaged patient groups have been the most heavily penalized under the HRRP. Though some argue that these hospitals have higher readmission rates because they provide a lower standard of care, the increased incidence of readmissions at these hospitals is largely explained by the socioeconomic conditions of their patient populations. As a result, the penalty program detracts financial resources from hospitals that care for patients with the most complex health needs, and this penalty distribution may in turn unjustly increase health disparities by restricting the health care services that are available to poorer patient populations. Therefore, the current HRRP penalty system requires adjustments to ensure that the financial penalties made under the program are not allocated according to an inequitable distribution of the social and economic determinants of health. In order to sustain long-term improvements in readmission rates, health care reform should aim at increasing measures that emphasize comprehensive care processes to directly target the causes of readmissions for individual patients.

Introduction

Recent health care reform has aimed to increase the quality of care provided by hospitals while also introducing cost-containment measures. Because inpatient hospital readmissions are associated with unfavorable patient outcomes and high financial costs, reducing these readmissions has become a focus for health care reform. Hospital readmissions occur when a patient is admitted to a hospital within a specified time period following discharge from an initial hospitalization. In terms of Medicare policy, readmissions are defined as re-hospitalizations occurring within 30 days of an initial hospital discharge. Because hospital readmissions reflect relapses in poor health for patients, readmission rates have been identified as a measure to assess the quality of care provided by hospitals in terms of their ability to prevent poor health outcomes. Health care policies have been implemented to reduce hospital readmissions and are based on the assumption that high readmission rates indicate the provision of low-quality care or a lack of appropriate post-discharge care coordination by hospitals to ensure that patients' health needs are met. As such, reducing readmissions has become an objective of health care policy in order improve care quality and lower the costs associated with re-hospitalizations.

Policymakers have been especially concerned with reducing hospital readmissions among the Medicare patient population. Readmissions are prevalent among Medicare patients, with nearly one in five Medicare hospitalizations resulting in a re-hospitalization within 30 days of an initial discharge (Jencks et al. 2009). Estimates suggest that as many as three-quarters of these readmissions are preventable, and in its 2007 report to Congress, the Medicare Payment Advisory Commission (MedPAC) estimated that Medicare spent over $12 billion annually in extra costs associated with preventable readmissions (Jencks et al. 2009; MedPAC 2007). With the high incidence of preventable readmissions producing significant Medicare costs, the Centers for

Medicare and Medicaid Services (CMS) implemented reforms aimed at reducing preventable readmissions and improving the quality of care provided by hospitals. These reforms included pay-for-performance measures that utilize value-based payment strategies to promote improvements in care quality. Under these value-based approaches, hospitals receive payments based on their ability to meet quality standards in the services that they provide. Prior to the implementation of this approach, hospital administrations were more concerned with patient volume and increasing the number of patients that they served in order to produce greater profits. However, the value-based approach has shifted the emphasis in care provision so that hospitals devote greater attention towards improving patient outcomes rather than increasing the number of patients that they serve (Werner et al. 2011). One strategy used by CMS to implement this value-based approach involves the use of financial penalties to punish hospitals for the provision of low-quality care.

Established as a provision of the Patient Protection and Affordable Care Act (ACA) of 2010, the Hospital Readmissions Reduction Program (HRRP) serves as an initiative implemented by CMS to reduce the frequency of readmissions among Medicare beneficiaries and increase the value of health care. With the goal of reducing readmissions, the HRRP also provides an incentive for hospitals to increase their care quality and improve patient discharge processes. The HRRP utilizes financial penalties to reduce Medicare reimbursement payments to hospitals with excessive readmission rates for Medicare beneficiaries hospitalized for specified conditions and surgical procedures. While the initial results suggest that the current HRRP penalty system has proven effective in lowering readmission rates across the United States, the current methodologies used to determine which hospitals receive the financial penalties fail to recognize the social and economic determinants that underlie health disparities and drive readmissions for many patients. Though the current methods used to determine whether hospitals have excessive readmission rates

make risk-adjustments for age, gender, and comorbidities occurring within a patient population, these adjustments do not account for important factors such as socioeconomic status (SES) that impact the resources and support that patients have available for maintaining good health outside of the hospital. Because many readmissions result from socioeconomic factors such as the inability to afford medications or receive adequate support from caregivers, hospitals that provide care to a large share of socioeconomically disadvantaged patients are more likely to treat patients that are at a greater risk for readmission. As a result, these hospitals may receive more penalties under the current HRRP system for having higher readmission rates.

Because those hospitals that serve a disproportionate share of socioeconomically disadvantaged patients face an increased risk for receiving penalties under the HRRP, concerns have arisen that the HRRP places an unfair financial burden on hospitals serving those with the most need. While the HRRP is intended to incentivize hospitals to improve their quality control efforts and ensure that patient discharge needs are met, the resulting financial strain placed on some hospitals may reduce their ability to provide care to socioeconomically disadvantaged patients and increase health disparities. As a result, questions of justice have arisen regarding the distribution of penalties under the HRRP since these payment reductions disproportionately impact hospitals that serve vulnerable patient populations. In order to promote fairness and ensure that the allocation of penalties does not result from an inequitable distribution of the social determinants of health, the HRRP must undergo changes so that it more effectively incentivizes hospitals to improve care quality and ensures justice in the distribution of penalties. Furthermore, improvements to readmission rates under the HRRP will only be maximized by addressing health status holistically as the collective sum of both underlying disease processes and the social

determinants of health. Therefore, the HRRP and policies intended to reduce readmissions should be realigned to more directly identify and address the causes of readmissions.

The Medicare Hospital Readmissions Reduction Program (HRRP)

In order to provide direct financial incentives to hospitals to reduce readmissions, CMS implemented the HRRP in October 2012 and began assessing penalties to hospitals paid under the Medicare payment systems for having excessive rates of readmission. Under this program, hospitals receive financial penalties in the form of reduced Medicare reimbursements if they have higher than expected 30-day readmission rates for Medicare beneficiaries experiencing hospitalizations for specified medical conditions and procedures. The conditions and surgical procedures initially included under the HRRP were selected because they are particularly common, involve costly treatment, and result in relatively frequent preventable readmissions (McHugh et al. 2010). The conditions initially measured when the program began in 2012 included acute myocardial infarction (heart attack), heart failure, and pneumonia. Since its implementation, the HRRP has expanded to also include chronic obstructive pulmonary disease (COPD), total hip and knee replacement, and coronary artery bypass graft surgery (CABG) for the treatment of coronary heart disease. With these conditions already measure, CMS will continue to increase the number of conditions included under the program in future years. Hospital performance is measured by tracking the readmission rates for these targeted conditions over three-year time periods, and payment penalties are annually assessed to hospitals based on performance in the preceding three-year measurement period.

The HRRP assesses penalties according to the Medicare reimbursement system. Medicare reimbursements refer to the payments that hospitals receive in return for services provided to

Medicare beneficiaries. The reimbursement rates for these services are set by Medicare and are typically less than the amount billed or the amount that a private insurance company would pay (McIlvennan et al. 2015). For Medicare beneficiaries with inpatient hospital stays, hospitals receive payments through the inpatient prospective payment system (IPPS). These payments are based on a diagnosis-related group (DRG), and cover the cost of the inpatient stay and any admission-related outpatient diagnostic and non-diagnostic services provided by the medical institution. Notably, this payment does not provide coverage for post-discharge interventions such as the employment of social service programs and follow-up care to ensure that patients comply with their treatment regimens (McIlvennan et al. 2015). Because IPPS sets limits on the number of days that Medicare payments will cover inpatient hospital stays for a given diagnosis, hospitals have financial interests to provide efficient care to their patients and not extend their stays unnecessarily. When patients require hospitalization for more days than is allowed based on their DRG, the cost of providing care to patients on these extra days falls on the hospital. As a result, hospitals may provide a significant amount of uncompensated care if they do not maintain timely discharges. While DRGs were introduced as a means to reduce costs and shorten hospital stays for Medicare patients by setting a target on the length of stay, many physicians and hospital officials have argued that such payment systems place financial pressures on hospitals to discharge patients early in ways that impose health risks on them (Baicker & Robbins 2015). As a result, these pressures may increase readmissions by causing hospital workers to overlook or neglect unmet patient needs during the discharge process as they work to increase discharge efficiency.

Prior to the HRRP, Medicare IPPS provided hospitals with a fixed average amount of payment per admission based on a patient diagnosis, regardless of whether or not an admission was determined a 30-day readmission. Hospitals therefore did not face any direct financial

incentives to avoid unnecessary readmissions. One intent of the HRRP was thus to discourage hospitals from using inpatient readmissions to increase revenue. As a result, the HRRP has required CMS to reduce payments to IPPS-participating hospitals with excessive readmission rates for Medicare beneficiaries. The methods used to determine whether a hospital has excessive readmission rates involve measuring the actual readmission rates of a hospital for the health conditions specified under the HRRP and comparing these rates to their expected rates. These expected rates are calculated based on the collection of data regarding national averages in readmission rates for each condition. The expected readmission rates for a hospital undergo risk-adjustment according to the age, sex, and comorbidities occurring within a hospital's patient population. Hospitals whose readmission rates exceed those of the average hospital with similar risk-adjustments are penalized in proportion to their excess rate of readmissions, with those hospitals with higher readmission rates receiving proportionately higher penalties. The penalties themselves consist of a percent-based reduction in the total Medicare reimbursement payments provided to a hospital by CMS. In 2013, the HRRP penalties were capped at 1%, but with the inclusion of a greater number of conditions under the HRRP, these penalties have increased to a maximum 3% reduction of all Medicare base payments paid to a hospital within a given year. All of the penalties assessed to hospitals serve as savings to CMS and are used to protect guaranteed benefits and provide new services to all Medicare beneficiaries (McIlvennan et al. 2015).

Readmission Rates as a Measure of Hospital Quality

In assessing the HRRP payment penalties as a function of readmission rates, CMS has assumed that these rates serve as an accurate way to measure hospital quality. However, it remains debated whether these rates adequately indicate care quality. Although high readmission rates can

indirectly signal lower quality care, they also provide information regarding the vulnerability of patients towards readmissions. Questions have arisen regarding the use of readmission rates to compare hospital quality, and investigations have found that readmission rates prove to be an inadequate measure for comparing the care of hospitals relative to each other (Weissman et al. 1999). In fact, using readmission rates to compare hospitals to one another yields different results than when other indicators of care quality and patient outcomes such as patient mortality rates and treatment complications are used to make these comparisons (Krumholz et al. 2013).

Several underlying reasons may explain why hospital readmission rates do not necessarily serve as a strong indicator of hospital quality. By definition, readmission rates directly measure health service utilization and the not the quality of care provided by hospitals or patient outcomes such as their experience with complications following treatment (Ashton & Wray 1996). Utilization measures quantify the frequency of health care service usage, but provide no insights into the appropriateness of the use of these services relative to patients' health needs. In particular, readmission rates do not necessarily distinguish between necessary utilization that occurred despite the provision of high-quality care and utilization resulting from the inappropriate use of health care services, a failure in the discharge process, or from underlying factors such as disease severity or the increased health vulnerability of patients with limited social and economic supports (Benbassat & Taragin 2000). As such, in addition to not directly measuring the appropriateness of health care service utilization levels relative to patients' actual health needs, a pure utilization measure does not account for the underlying factors and social determinants of health that drive readmissions.

Rather than providing information regarding the quality of care provided by hospitals, readmission rates may instead capture information regarding the vulnerable health status of certain patient populations. A range of social and economic determinants impact health status and drive

readmission rates for hospitals. These determinants include not only the ability to afford necessary medications and interventions, but also other important factors such as having access to transportation for follow-up care appointments, social support to receive care and assistance outside of the hospital, education to understand health problems, and the fulfillment of basic needs that impact health such as having access to good nutrition and reliable housing. A deficiency in any of these social and economic resources can lead to increased health risks and increase the likelihood of experiencing frequent relapses of poor health (Herrin et al. 2015). Further, these social and economic determinants of health often dictate patterns of health care service utilization.

Safety-net hospitals, or those hospitals typically in the top quartile in terms of serving Medicaid beneficiaries and that provide at least 15% of their total care as charity, serve a large share of low-income individuals and have been found to have higher readmission rates than other hospitals serving a smaller proportion of socioeconomically disadvantaged patients (Joynt & Jha 2011; Barnett et al. 2015). While the elevated readmission rates at these hospitals have led some to conclude that they provide lower quality care, these higher rates may result from characteristics of their patient populations. When comparing the readmission rates of safety-net and non-safety-net hospitals, it has been found that the differences are due primarily to the patient case-mix of the hospitals and not the quality of care that they provide. Studies have found that only about 0.84% of the variation in readmission rates between safety-net and non-safety-net hospitals is due to the quality of care of the hospitals themselves and that almost 60% of the variation is due to differences in the patient characteristics between hospitals (Singh et al. 2014). This evidence indicates that the elevated readmission rates of safety-net hospitals are not primarily due to a lower quality of care provided, but rather due to the fact that they tend to care for patient populations that consist of sicker and more vulnerable individuals who are already more likely to experience a greater number

of readmissions. As a result, readmission rates may capture more information regarding hospitals' patient populations than the care quality of care that they provide, and further efforts must be made to understand the reasons for why patient case-mix significantly impacts readmission rates.

Differences in health care service utilization patterns for patients from different socioeconomic backgrounds may help to explain why readmission rates are higher for some socioeconomic groups than others. Importantly, readmission rates do not measure the appropriateness of the use of health care services, and thus these rates do not necessarily identify the different patterns in service use between patient groups. Though readmission rates measure the overall usage of health care services, they do not measure whether patients utilize these services appropriately relative to their health needs. Evidence suggests that patients of low-SES utilize health care services in ways that lead to elevated readmissions. Patients of low-SES utilize more acute hospital care and less primary care than high-SES patients (Kangovi et al. 2013). This low-value pattern of care usage and limited assistance through primary care becomes detrimental to patients' health and costly to the health care system. Low-SES patients experience a greater number of hospitalizations for conditions that could have been prevented or mitigated by effective primary care usage (Tang et al. 2010). Low-SES patients are also more than twice as likely as high-SES patients to require urgent emergency department visits and admissions to hospitals through emergency services (Tang et al. 2010; Kangovi et al. 2013). While low-SES patients are more likely to be hospitalized and seek care through emergency services, they have an increased likelihood to return to the hospital after discharge and require multiple hospitalizations for a given illness (Ladha et al. 2011). The underuse of primary care and overuse of hospital-based care among low-SES patients has negative consequences in terms of readmissions since this usage pattern often means that these patients experience relapses in poor health following discharge due to an inability

to access post-discharge care. Their limited use of primary care further means that these patients are more likely to experience greater disease severity since they are unable to take preventative actions in managing their health (Singh et al. 2014).

The high readmission rates of low-SES patients and their low-value patterns of health care utilization are largely explained by understandings of the social and economic determinants of health and health care utilization. Both individual characteristics and community-level SES have been found to strongly influence the likelihood of readmissions for individual patients. Patients living in high-poverty neighborhoods are more likely than others to experience readmissions, even after accounting for individual clinical conditions and demographic characteristics such as race and insurance coverage status (Hu et al. 2014). Community-level factors strongly influence readmission rates, with residency in a disadvantaged neighborhood predicting higher readmissions for all of the conditions currently included under the HRRP (Kind et al. 2014). Much of the variation in readmission rates between hospitals in different communities has been explained by differences in the socioeconomic characteristics of the communities in which these hospitals are located. Among these characteristics are neighborhood income and educational attainment levels (Herrin et al. 2015). Further determinants such as living in areas with poor quality housing or in resource-deprived communities can significantly increase the likelihood of readmission for patients. These circumstances cause individuals to experience greater exposure to environmental risks while also limiting their ability to access important health resources such as primary medical care and proper nutrition (Herrin et al. 2015).

Residential location has significant implications for health. Areas with concentrated poverty—neighborhoods with greater than a twenty percent poverty rate—are linked to detrimental health outcomes including low birth weights, increased development of asthma and

infections, higher rates of heart attack, and poor overall self-rated health (Do et al. 2008). These residential locations are attributed with causing adverse health conditions due to crowding, substandard housing, violent social environments characterized by crime, and elevated exposures to chemical toxins and allergens (Richardson and Norris 2010). Numerous studies have demonstrated an association between the social and economic characteristics of residential areas and a broad range of health outcomes that are independent of individual indicators of SES. For example, even after adjustments for education, income, occupational status, and a range of biomedical and behavioral risk factors for coronary heart disease, people living in socioeconomically disadvantaged neighborhoods have a higher incidence of heart disease than people living in more advantaged neighborhoods (Richardson and Norris 2010). As a result, hospitals serving patients from these communities treat individuals who are more vulnerable to experiencing poor health.

Individual access to health care resources is also strongly impacted by community-level factors. Neighborhoods that are characterized by economic and social disadvantages have difficulty in attracting primary and specialty-care physicians (White et al. 2012). Providers practicing in these neighborhoods are more likely to be confronted with clinical, logistical, and administrative challenges due to the limited availability of other health care resources. Many providers are further discouraged to locate in these medically underserved areas due to high administrative costs and lower provider reimbursement rates that result from receiving higher proportions of uninsured and Medicaid patients (Gaskin et al. 2012). As a result, hospitals located in these neighborhoods are more likely to receive patients who have little to no access to primary and preventative care, and patients living in these areas are less likely to have resources available to them for complying with follow-up care or post-discharge regimens.

While health status is often tied to residential location, it is also strongly associated with the support that individuals receive from those around them. Social support has been closely tied to the likelihood of readmission for individual patients, with those living alone experiencing an increased risk of readmission following a hospitalization when compared to those patients that are married or living with other relatives (Hu et al. 2014). Evidence suggests that having increased social support helps to reduce one's likelihood of readmission, as family members and others can serve as caregivers and provide patients with assistance to comply with post-discharge care instructions. Importantly, low-SES patients are more likely to be socially-disadvantaged and receive less help from caregivers as a result of having limited social networks that are restricted by their occupational status and educational attainment (Pampel et al. 2010). Living alone or having low levels of education often indicate a restricted access to social support and a limited ability to implement complicated care regimens recommended by physicians (Arbaje et al. 2008). Low educational attainment places limitations on patient understandings at discharge and leads to greater non-compliance with post-discharge care and complications with care transitions from the hospital (Herrin et al. 2015). A limited understanding of the treatments that they are given restricts patients' ability to manage their illnesses and prevent clinical deterioration before requiring readmissions or emergency room visits. Further, having either physical or mental impairment restricts patients' ability to perform activities that are essential for implementing post-discharge treatment regimens. Disabilities and requirements for assisted daily living predict readmissions and thus have been included among the measures used by hospital workers to assess readmission risks for hospitalized patients (Arbaje et al. 2008).

Further social and economic factors prevent patients from low-SES groups from accessing care that is necessary for avoiding readmissions. Barriers such as a lack of available transportation

to follow-up care appointments and an inability to afford prescribed medications are some of the most significant barriers to receiving appropriate post-discharge care outside of the hospital (Strunin et al. 2007). Patients have indicated that an inability to afford medications after discharge often forces them to become incompliant with treatment as they simply stop taking their medications. Low-income patients also often cite the inability to make necessary lifestyle changes that physicians recommend to improve their long-term health. While physicians may tell patients that they require a change in diet or living arrangements in order to improve their health, often these solutions are not easily met by patients who do not have the means to make these adjustments on their own (Kangovi et al. 2012). Because a higher proportion of patients living in low-SES communities are unable to afford post-discharge medications and services such as home health nursing assistance, readmission rates are likely to be higher at hospitals serving these communities (Singh et al. 2014). As a result, patient characteristics such as income levels and SES serve as a large contributor to variations in the risk of readmission among hospitals (Singh et al. 2014).

In identifying the social and economic determinants that drive readmissions on both individual and community levels, it becomes evident that having a high readmission rate does not necessarily indicate that a hospital provides low-quality patient care. Instead, high readmission rates may also reflect the treatment of patient populations that are more likely to be readmitted following discharge, regardless of the quality of care provided by the hospital. In particular, high readmission rates may indicate the special vulnerability of patient populations to relapses in poor health. As a pure utilization measure, readmission rates do not fully assess the quality of care provided by hospitals because they do not account for the underlying factors that drive readmissions or provide information about whether hospital services are appropriately used by patients. In terms of the HRRP, the socioeconomic characteristics of patients are not included in

Medicare's current risk-adjustment methods even though they explain much of the difference in readmission rates between patients admitted to hospitals with high versus low readmission rates (Barnett et al. 2015). With this understanding of how health care service utilization and readmission rates differ based on socioeconomic factors, the HRRP can be better formulated to address the underlying causes of readmissions and more effectively improve health outcomes, especially for low-SES patients.

Effectiveness of the HRRP in Reducing Readmissions

While readmission rates fail to account for several of the underlying factors that explain the high incidence of readmissions occurring at hospitals serving low-SES patients, it remains important to assess the potential improvements made under the HRRP in order to determine the changes that must be made in order to maximize its benefits. From the initial results of the first few years of the program, the HRRP has shown early signs of improving readmission rates across the U.S. while also reducing Medicare costs. At least two-thirds of eligible hospitals have received financial penalties each year under the HRRP, with the program measuring performance at about 3,800 hospitals (McIlevennan et al. 2015). Both the overall proportion of hospitals that are penalized and the size of these penalties have increased since CMS implemented the program in 2012 and expanded it in later years to include a greater number of health conditions (Table 1). As a result, the reductions in payments to hospitals with excess readmissions has produced Medicare payment savings that will total to about $2 billion by 2017.

While the number of hospitals penalized under the HRRP has increased along with Medicare payment savings, readmission rates for Medicare patients across the country began to decline following the implementation of the HRRP penalty system (Joynt & Jha 2013). According

Table 1. HRRP penalties by fiscal year (FY). The penalties are set to increase as the number of conditions included under the program continues to expand.[1]

Year of penalty application	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Performance (measurement) period	June 2008-July 2011	June 2009-July 2012	June 2010-July 2013	June 2011-July 2014	June 2012-July 2015
Diagnoses of initial hospitalization	Heart attack Heart failure Pneumonia	Heart attack Heart failure Pneumonia	Heart attack Heart failure Pneumonia COPD Hip or knee replacement	Heart attack Heart failure Pneumonia COPD Hip or knee replacement	Heart attack Heart failure Pneumonia COPD Hip or knee replacement CABG
Maximum penalty rate	1%	2%	3%	3%	3%
Average penalty (among penalized hospitals only)	-0.42%	-0.38%	-0.63%	-0.61%	-0.74%
Percent of hospitals penalized	64%	66%	78%	78%	79%
Percent of hospitals at maximum penalty	8%	0.6%	1.2%	1.1%	1.8%
CMS estimate of total penalties	$290 million	$227 million	$428 million	$420 million	$528 million

to data released by Health and Human Services, from 2007 to 2011 the all-cause 30-day readmission rate among Medicare beneficiaries remained relatively constant in ranging between 19.0-19.5% of all Medicare patient hospitalizations. For 2012, the year when the HRRP went into effect, the national readmission rate for all Medicare readmissions fell to 18.5% and declined further to 17.5% by 2013 (Krumholz et al. 2014). This decrease in readmissions between January 2012 and December 2013 translated to an estimated 150,000 fewer hospital readmissions over this time period (Joynt & Jha 2013). The HRRP appears to have had a stronger impact on rural hospitals, safety-net hospitals, and public hospitals that have shown larger overall decreases in readmissions compared to other hospitals (Carey & Lin 2016). Improvements in readmission rates between

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[1] Data obtained from the Kaiser Family Foundation analysis of CMS Final Rules and Impact files for the Hospital Inpatient Prospective Payment System. Data made publicly available by CMS.

fiscal years 2013 and 2016 were greater for safety-net hospitals than other hospitals for many of the conditions included under the HRRP. For example, readmissions for heart attack fell 2.86 percentage points at safety-net hospitals compared to 2.64 percentage points at other hospitals (Carey & Lin 2016). Because these hospitals rely more heavily on Medicare and Medicaid payments, it has been suggested that they might be more motivated by the HRRP payment penalties to avoid having excess readmissions that cause them to become vulnerable to Medicare payment cuts (Lu et al. 2016). However, the larger improvements in readmission rates at safety-net hospital may also be due to the fact that these hospitals already had higher readmission rates, allowing them to have more room for improvement (Carey & Lin 2016). Therefore, these results do not necessarily indicate that the HRRP has motivated safety-net hospitals to improve readmissions more so than other hospitals.

The HRRP has produced reductions in excess 30-day hospital readmissions for the conditions measured under the program. Hospitals that were identified by CMS as having excess readmissions and that received reduced Medicare payments in 2013 showed a significant decrease in readmissions for the three conditions initially included under the HRRP from 2013 to 2015 (Lu et al. 2016). Those hospitals that have been subject to penalties under the HRRP have also had greater overall reductions in their readmission rates compared to non-penalized hospitals, suggesting that the penalties have led to changes in efforts to reduce readmissions at these hospitals (Desai et al. 2016). While readmission rates overall have decreased across the U.S., the declines in readmissions have been larger for the target conditions identified in the HRRP compared to non-target conditions. From 2007 to 2015, risk-adjusted readmission rates for targeted conditions decreased from 21.5 to 17.8. percent. During that same time frame, the readmission rate for non-targeted conditions declined from 15.3 to 13.1 percent (Zuckerman et al. 2016). Since readmission

rates have decreased for both penalized and non-penalized hospitals and for conditions beyond what is included under the HRRP, it seems evident that the prospect for receiving financial penalties for excessive readmissions has caused hospitals across the country to improve their measures for preventing readmissions.

While the trend in declining readmission rates tends to indicate that the HRRP has begun to meet its intended purpose of reducing both hospital readmissions, further evidence indicates that HRRP incentives have worked only to a limited extent. Though the readmission rates for both targeted and non-target conditions decreased from 2007 to 2015, it has also been found that much of these improvements were achieved in the first few years of the program and that progress has slowed since then. Analysis has shown that readmission rates actually decreased most rapidly during the six-month period after the passage of the ACA in 2010, implying that hospitals began reducing readmissions in preparation for the activation of the HRRP in 2012. Readmission rates continued to decline from 2010 to 2013, but these reductions have since stagnated and only shown small improvements during the long-term follow-up period from 2013 to 2015 (Zuckerman et al. 2016). With this evidence, it appears that while the HRRP was initially able to effectively incentivize hospitals to reduce readmissions, this program has only had diminished long-term effects as hospitals may not be able to sustain a high rate of improvements. Further, while readmission rates for both targeted and non-targeted conditions have decreased, greater reductions have been observed for targeted conditions. This may indicate that the targeted conditions had higher baseline readmission rates which allowed more room for improvement or that hospitals have made greater changes in the organization of care for the conditions included under the HRRP (Zuckerman et al. 2016). With these findings, policymakers have proposed expanding the HRRP to cover all clinical conditions in order to create incentives for hospitals to more aggressively

reduce overall readmissions. Thus, while the HRRP has proved effective in terms of producing significant initial reductions in readmission rates, the long-term benefits of the program remain in doubt as hospitals have been unable to maintain continued progress in significantly reducing these rates. As a result, the HRRP may require significant changes in order to ensure the long-term effectiveness of the program.

Unintended Consequences of the HRRP

Though the early returns indicate that the HRRP has proven effective in lowering hospital readmission rates across the U.S., further evidence suggests that this program has the potential to negatively impact the health status of socioeconomically disadvantaged patients. Hospitals that care for higher shares of patients with complex medical problems and socioeconomic disadvantages not accounted for in the HRRP readmission assessment models are the most heavily penalized under this program. For example, hospitals serving disproportionately large shares of patients who are dual-eligible for both Medicaid and Medicare have been assessed the largest Medicare reimbursement penalties under the HRRP (Lu et al. 2016). Dual-eligibility status itself predicts an increased risk for readmission, causing those hospitals that serve a high share of dual-eligible Medicare patients to have higher risk-adjusted readmission rates (Gu et al. 2014). As a result, with dual-eligibility serving as a proxy for patient SES, those hospitals that provide care to a disproportionate share of low-SES patients are more likely to be penalized under the current HRRP penalty system (Barnett et. al 2015). Having dual-eligibility for these public insurance programs typically indicates the poor or near poor status of patients, thus indicating that hospitals serving poorer patients are more heavily impacted by the HRRP. With the HRRP penalties falling more heavily on high-dual hospitals, patient mix in terms of SES appears to play an important role

in predicting the distribution of the HRRP payment penalties. Importantly, the current CMS readmission assessment methodology does not account for the socioeconomic profiles of hospitals' patient populations. As a result, the HRRP ends up reducing Medicare payments to those hospitals that serve poorer patients and may already have negative all-payer profit margins as a result of receiving lower Medicaid reimbursements and providing a large amount of uncompensated care to underinsured individuals (Gu et al. 2014).

The allocation of the HRRP penalties has in fact been largely based on the distribution of socioeconomically disadvantaged patients across hospitals. The majority of hospitals penalized in the first few years of the program have been large public hospitals, teaching hospitals, and not-for-profit hospitals. Many of these hospitals are further categorized as safety-net hospitals, or those hospitals previously noted to provide care that is at least 15% uncompensated and that are also typically in the top quartile of all hospitals in terms of serving Medicaid and dual-eligible patients (Joynt & Jha 2013). The HRRP has been found to more strongly impact these hospitals serving larger shares of low-income patients. Safety-net hospitals are 30% more likely than non-safety-net hospitals to have 30-day hospital readmission rates that are above the national average (Figueroa et al. 2016). In fiscal year 2013, safety-net hospitals were more likely than non-safety-net hospitals to be highly penalized (44% vs. 30%), and only 20% of safety-net hospitals did not receive any penalty (Joynt & Jha 2013). Predictions indicate that for 2017, 66% of hospitals in the lowest quartile in terms of serving low-income patients will be fined a readmission penalty, whereas 86% of hospitals in the highest quartile of serving of low-income beneficiaries will be penalized (Figueroa et al. 2016). Large public hospitals are more likely to be in the group receiving the highest penalties than in the group receiving the smallest penalties (19.8% vs. 7.7%), and major teaching hospitals show a similar penalty distribution (14.0% vs. 3.4%). Both of these types of

hospitals are often located in urban areas and serve poorer patient populations (Hu et al. 2014).
Similarly, hospitals meeting safety-net criteria and that include many public and teaching hospitals
are twice as likely to be in the highest penalty group than in the lowest penalty group (32.8% vs.
16.9%) (Figueroa et al. 2016). Therefore, evidence largely suggests that institutions characterized
as safety-net hospitals or that serve similar patient populations are more likely to receive Medicare
payment penalties under the HRRP. This penalty distribution thus raises concerns regarding the
consequences of the program on the health of the populations that these hospitals serve.

As previously discussed, several demographic and socioeconomic characteristics explain
community-level variation in readmission rates and why readmissions are higher for hospitals
serving low-income patient communities. These characteristics include differences in median
household income across communities, poverty rates, and the proportion of residents who are
enrolled in public assistance programs. These community-level factors are associated with the
presence of a greater number of individuals within these communities who are unable to afford
health care or gain access to primary health care services (Herrin et al. 2015). Readmission rates
are higher for patients from communities composed of higher numbers of socioeconomically-
disadvantaged residents, causing the hospitals that serve these communities to receive greater
financial penalties under the HRRP. Safety-net hospitals are more likely to be located in these
communities, causing them to be more vulnerable to the HRRP penalties (Joynt & Jha 2013).

The distribution of the HRRP penalties towards safety-net and other hospitals serving
larger shares of socioeconomically disadvantaged patients may have significant effects on the
health of these populations. As previously described, many low-SES patients live in medically
underserved areas in which health care resources are often absent beyond the services provided by
hospitals themselves. With Medicare payment reductions being disproportionately assessed to

hospitals serving these communities, concerns arise that the HRRP may detract resources from hospitals that are necessary for providing essential health care resources to their communities. In this regard, the HRRP penalties may actually decrease the quality of care and limit the number of services provided by hospitals serving communities that are already more vulnerable to experiencing poor health. The current penalty of up to 3% in Medicare base payment cuts may create considerable financial shortfalls for hospitals operating on marginal profits (Gilman et al. 2015). As CMS expands the HRRP to include patients readmitted for a greater number of conditions, hospitals operating on narrow profit margins may become more vulnerable to the effects of these financial penalties (Ly et al. 2011). Payer-mix, defined as the percentage of patients with private insurance coverage, has a significant impact on the financial health and operating status of hospitals. The payer-mix of safety-net and related hospitals is likely to contain higher proportions of patients that are underinsured, enrolled in public insurance programs such as Medicaid, or carry no insurance coverage at all (Manary et al. 2016). As a result, these hospitals provide higher rates of uncompensated care and have narrower profit margins. If these hospitals continue to receive lower reimbursements such as through the HRRP penalties, then they will be less able to make the necessary investments to ensure quality care for their patients (Manary et al. 2016). Therefore, policies that financially penalize hospitals on the basis of readmissions may prevent hospitals that serve fewer privately insured patients from improving care quality efforts.

With care quality likely to decrease as a result of the financial burden of the HRRP penalties on hospitals serving disadvantaged patient populations, further evidence suggests that the current HRRP penalty system may contribute to increases in health disparities between racial and ethnic groups. Along with disproportionately impacting safety-net and related hospitals, the HRRP distributes a significant portion of the penalties to minority-serving hospitals. Over two-thirds of

safety-net hospitals are also categorized as minority-serving hospitals, or those hospitals in the top quartile in terms of the proportion of minority patients that make up their patient population (Joynt et al. 2011). With safety-net hospitals found to have higher readmission rates than other hospitals, these rates are also found to be higher at minority-serving hospitals than non-minority-serving hospitals (Tsai et al. 2014). Studies have found that among Medicare recipients, readmissions rates are higher for all patients at minority-serving hospitals than at non-minority serving hospitals, regardless of individual patient race. Black patients receiving care from minority-serving hospitals have higher rates of readmission than black patients at non-minority hospitals, and this trend also applies to white patients who also have higher readmission rates at minority-serving hospitals (Joynt et al. 2011).

This evidence suggests that readmission rates are associated with the site of hospital care and that community and neighborhood factors drive these readmissions. Minorities are more likely to live in disadvantaged communities with a significant share of individuals who are at an increased risk for readmissions (Tsai et al. 2014). As a result, the current HRRP penalty system may inadvertently utilize segregation by both race and income to allocate the Medicare reimbursement penalties. With higher readmission rates occurring at minority-serving hospitals located in low-income communities, these hospitals are almost twice as likely as non-minority-serving hospitals to receive financial penalties under the HRRP (Shih et al. 2015). While concerns arise that higher readmission rates at these hospitals reflect a provision of lower quality care, the increased readmissions of these hospitals mean that they are faced with a disproportionate share of the highest readmission penalties that in turn reduce their ability to maintain the provision of necessary services and improve their care processes (Gilman et al. 2015). As a result, the readmission penalties may have a profound impact on these hospitals' ability to provide care for patients that

come from poor neighborhoods and already disadvantaged circumstances. Thus, the current HRRP has the potential to increase racial and income-based health disparities by penalizing hospitals that serve larger shares of minority patient populations in socioeconomically disadvantaged communities.

Because the HRRP disproportionately penalizes hospitals that serve a large share of socioeconomically disadvantaged patients that are vulnerable to poor health, this Medicare readmissions policy could potentially exacerbate health care systems inequity. The current approaches applied by CMS to reduce readmission rates assume that variability in hospital readmissions occur primarily due to differences in hospital performance. However, these approaches do not adequately account for the effects of patient sociodemographic profiles and community factors that influence health care utilization and patient outcomes. Therefore, while the HRRP may serve to reduce readmission*s*, its effects on hospitals that serve socioeconomically disadvantaged communities may increase health care system injustices by reducing the resources available for these hospitals to provide services to patients with the most complex health problems (Bhalla & Kalkut 2010).

Ethical Concerns and Fairness in Hospital Readmission Policy

Many of the controversies surrounding the ACA and related health care policies such as the HRRP result from the premise that there are governmental and societal obligations to provide health care to those in need. With many health disparities rooted in societal injustices such as poverty and inequalities in terms of access to health care services, health care reform serves to reduce these disparities and help those with the most need. Health care professionals and policymakers have a moral responsibility to ensure the delivery of effective health services and

rectify injustices in the health care system. While many health system reforms follow a utilitarian framework to improve population health through bettering the overall delivery of medical and public health services, these reforms must be reevaluated when they create further injustices and impose health risks on population subgroups to worsen health disparities across a population. Though the HRRP was implemented with the purpose of improving population health by incentivizing hospitals to raise the quality of care they provide, evidence indicates that this program may unintentionally increase health disparities and worsen health outcomes for vulnerable individuals by reducing the quality of care available to them.

The moral basis for health care reform can be rooted in John Rawls's ethical framework of justice as fairness. Rawls argues that a social contract among free and equal citizens should include three general principles of justice which include protecting equal basic liberties, guaranteeing fair equality of opportunity, and limiting inequalities to those that benefit the worst off. While Rawls does not specifically address health and health care, Norman Daniels extends Rawls' theory of justice by arguing that health is of special moral importance because it protects the range of opportunities available to each individual to function in society. If we have social obligations in a just society to protect individual opportunity, then promoting and restoring health serves as one component of fulfilling these obligations (Daniels 2001). Daniels further contends that health inequalities become unjust when the social determinants of health are unfairly distributed and when access to health care is inequitable.

Health and health care are of special moral importance because they allow individuals to maintain a level of normal functioning that is essential to protect the range of exercisable opportunities, or capability sets, available to them. If we have societal obligations to protect opportunity, either because we want to give priority to those with the worst opportunities or

because we support a concept of fair equality of opportunity, then we have an obligation to protect normal functioning in a population. This obligation means that we must equitably distribute not only the risk of becoming ill, but also the means of overcoming illness. In order to fairly distribute the risk of illness and health, we must distribute the social determinants of health in a just way and provide equitable access to the full range of health services that individuals require to maintain good health (Daniels 2001).

While most health care policy reforms are aimed at improving population health, the methods used to make these improvements may exacerbate health disparities. In terms of hospital readmissions, the HRRP serves to reduce readmissions across the U.S., but it may inadvertently detract resources from those institutions that treat disadvantaged patient populations. Further, this policy fails to recognize the holistic nature of health status, as a range of social determinants such as education, social support, and access to necessary health care resources are likely to impact health status and compound the negative effects of one's medical condition. In *Just Health*, Daniels notes that "health is produced not just by having access to medical prevention and treatment, but also to a measurably great extent by the cumulative experience of social conditions across the life course" (Daniels 2001). In this respect, health does not merely reflect the outcomes of one's underlying biological processes, but also the aggregate effects of the social and environmental conditions that dictate one's life course. Therefore, unlike the current state of the HRRP, health care reform centered on approaches to reducing readmissions should recognize the complexity of patients' health and the range of social determinants that impact health status.

While hospitals can implement strategies that help to reduce readmissions, they should not be held responsible for the characteristics of their patient populations and the impact that these characteristics have on their vulnerability towards readmissions. The current HRRP penalty

program exacerbates injustices in the health care system by detracting resources from hospitals that serve those that are most vulnerable to relapses of poor health, and thus the current system utilizes existing inequalities in society to distribute the penalties in an unjust way. As a result, the HRRP increases health disparities across socioeconomic groups and increases the burden of poor health on already disadvantaged patient populations. Therefore, the current system should be reevaluated and adjusted so that safety-net and other hospitals serving low-income and vulnerable patient populations are not unjustly punished and limited in the resources that they can provide to their patients. The current distribution of penalties is based on background injustices that cause hospitals to serve patient populations that differ in terms of their levels of vulnerability towards experiencing poor health. Because there is not an equitable distribution of the social determinants of health across society, the framework for allocating the HRRP penalties requires changes so as not to exacerbate existing health disparities and instead promote access to quality health care at those hospitals serving the most disadvantaged patient populations.

Though the current HRRP utilizes a utilitarian approach to improve population health by reducing readmission rates and health care spending across the country, these efforts have had the backward effect of unfairly detracting health care resources from hospitals that serve poorer patients. The health of these poorer patients then suffers as the financial pressure that hospitals face reduces their ability to increase measures to improve quality care and increase the services that are available to their patients. According to a justice as fairness approach, the HRRP requires reevaluation since it unintentionally utilizes an existing inequitable distribution of the social determinants of health to create further disparities in health outcomes for low-SES patients. While the HRRP may improve the macro-allocation of health care across the country by reducing national readmission rates, it currently harms those with the greatest health needs. Thus, while the program

creates the net macro-level benefit of reducing readmissions, it also presents the cost of increasing health disparities between population subgroups. As a result, reforms to the HRRP should be made so that hospitals are incentivized and better equipped to improve the quality of care provided to poor patients and increase measures that are intended to reduce and prevent relapses in poor health for these individuals.

Policy Recommendations and Interventions to Reduce Readmissions

As it currently exists, the HRRP penalty system unfairly distributes the burden of financial penalties to hospitals that serve the most vulnerable patient populations. By excluding socioeconomic risk factors from the measures used to assess readmission penalties and not adjusting the penalties according to differences in patient populations between hospitals, CMS has effectively placed the responsibility on hospitals to address the socioeconomic disparities in post-discharge outcomes. However, while hospitals fulfill the role of institutions that function to restore individuals to good health and a baseline level of functioning, they are not equipped with the resources necessary to address all of the underlying causes of health problems as they relate to poverty. As such, hospitals should not be held responsible for remediating poverty on their own. Because hospitals cannot control many of the factors that drive readmissions, CMS should amend the HRRP to account for these factors and prevent the unfair penalization of hospitals that serve vulnerable patient populations. Further, if hospitals are to serve as a vehicle for addressing the socioeconomic disparities in health, then CMS should provide resources to hospitals to better equip them to more effectively plan patient discharges and improve patient care coordination.

Several measures should be taken to sustain the improvements that been made to hospital readmission rates under the HRRP while avoiding harms to hospitals that care for the most socially

and medically vulnerable patients. First, adjusting readmission rates to account for socioeconomic risk factors could help to increase fairness in assessing the readmission payment penalties. The inclusion of a risk factor for socioeconomic factors within a patient population would prevent hospitals from receiving punishments for social injustices that are beyond their control. Including these risk factors would allow for a fairer comparison of readmission rates between hospitals with similar patient populations in terms of their socioeconomic profiles. Adjusting for socioeconomic factors such as poverty rates, educational attainment, and homelessness within patient populations has been found to have significant effects on the calculated hospital readmission rates for patients admitted to hospitals with the medical conditions included under the HRRP. For example, when accounting for these risk factors, predicted readmission rates for heart failure in Missouri hospitals increase from 7.4 percent to 14.0 percent and pneumonia readmission rates increase from 3.7 to 7.4 percent (Nagasako et al. 2014). The increase in predicted readmission rates for these conditions means that hospitals serving patients with these and similar characteristics that increase their risk of readmission will be less likely to be punished for having elevated readmission rates. Further, adjusting readmission measures for SES has been found to create changes in hospital rankings using the HRRP threshold approach (Glance et al. 2016). This means that different hospitals would be penalized under the HRRP if socioeconomic factors are added to the current methodologies used for determining excessive readmission rates. Thus, the inclusion of socioeconomic risk factors by CMS would cause a reduction in the HRRP readmission penalties assessed to hospitals that provide care to patient populations whose health is most severely impacted by an inequitable distribution of the social determinants of health.

While incorporating socioeconomic risk factors into the methodologies used to assess penalties under the HRRP would help to more fairly distribute these penalties to hospitals that

actually provide lower quality care, objections have also arisen regarding the implications of adjusting for these factors. In considering possible amendments to the HRRP, CMS has been wary of creating a lower standard of care for hospitals serving higher proportions of low-income patients. The concern with implementing these adjustments is that making accommodations for socioeconomic and demographic factors would suggest that hospitals serving low-SES patients are held to lower standards of care and readmission targets than hospitals treating higher SES patient populations. Holding hospitals that serve low-SES patients to a lower standard may unintentionally weaken the incentives for those hospitals to improve health outcomes for disadvantaged patients. As a result, lower expectations for these hospitals may lead to the provision of lower quality care and worse outcomes for their patients (Boozary et al. 2015). However, readmission rates do not directly measure care quality, and the current allocation system for the penalties detracts resources from hospitals that already receive lower care reimbursement from their patients. With a greater number of penalties assessed to safety-net and related hospitals, these financial punishments potentially limit their ability to implement the changes that are needed to reduce readmissions and maintain quality care services. Therefore, the methodologies used to assign penalties under the HRRP should be adjusted to account for the factors that drive readmissions in order to ensure that the program does not detract resources from hospitals that have no control over the health vulnerability of their patients.

While obtaining socioeconomic data for individual patients may prove difficult due to restrictions on information sharing and problems with tracking this information, proxies for this data could be obtained by assessing patient dual-eligibility for both Medicaid and Medicare or by adding patients' eligibility for Supplemental Security Income to risk-adjustment models (Glance et al. 2016). With these methods, predicted readmission rates could be adjusted according to the

proportion of dual-eligible patients served among a hospital's total patient population. Further, hospitals could also be assigned to peer groups based on their share of low-income Medicare patients. Readmission targets could be set for each of these peer groups so that hospitals with similar shares of low-income patients would be compared with each other instead of all other competing hospitals. Overall, the inclusion of socioeconomic risk factors in readmission prediction models would help to create fairer comparisons between hospitals serving similar patient populations. Furthermore, it would allow readmission rates to serve as a relative measure for comparison rather than creating an absolute threshold of standards for hospitals to meet (Glance et al. 2016). This form of comparison could prove important because the standard for assessing readmission rates changes year-by-year, and with readmission rates decreasing across the U.S., safety-net and related hospitals will find it increasingly difficult to avoid the HRRP penalties due to the relatively limited resources that they have available to increase readmission prevention strategies (Gilman et al. 2015).

In addition to accounting for socioeconomic risk factors to determine excessive readmission rates, weighting the HRRP penalties according to the timing of readmissions would improve the ability of this program to appropriately penalize hospitals for providing low-quality care. Readmissions that occur within the first few days following discharge more closely reflect the provision of poor-quality care or an inadequate recognition of post-discharge needs, whereas readmissions that occur beyond 30 days of the initial discharge are more likely to result from the underlying severity of patients' illnesses and socioeconomic conditions. Using a shorter timeframe for readmissions would allow readmission rates to more closely reflect the quality of care provided by the hospital rather than reflecting the composition of the hospital's population or level of resource availability in the local community (Averill et al. 2009). In taking these considerations

into account, readmissions that occur closer to the date of initial discharge should receive heavier penalties than those that occur much later following the initial discharge. Under such a penalty system, hospitals that care for sicker, more socioeconomically vulnerable patient populations would become less likely to receive financial penalties that result from the fact that their patients generally have more complex medical conditions and social situations that increase their long-term likelihood of requiring later hospitalizations.

The comparative benchmark used to determine the excessiveness of readmissions should also undergo improvements in order to more fairly distribute the HRRP penalties. As previously noted, the penalty program utilizes a moving benchmark to compare hospitals since the methodologies used to determine excessive readmissions compares individual readmission rates to a national standard that CMS recalculates each year. This standard is determined by assessing what the national averages in readmission rates are for the conditions included under the HRRP. This means that, other than changes that result from including more health conditions under the HRRP and increasing the maximum size of the penalties, the proportion of hospitals receiving penalties remains relatively constant each year despite any improvements made to national readmission rates. As a result, many hospitals continue to receive penalties each year even after achieving significant reductions in their readmission rates (Boozary et al 2015). Because safety-net and other hospitals serving a disproportionate share of low-income patient populations already have higher rates of readmission than hospitals that serve patients from more advantaged backgrounds, updating the comparison standard each year means that safety-net hospitals will continue to be compared to an unfair standard even as their own readmission rates improve. Therefore, the benchmark for comparing readmission rates should remain fixed over an extended

period of time so that hospitals do not continue to receive financial penalties in return for effectively lowering their readmissions.

While the framework for determining the allocation of payment penalties under the HRRP should undergo adjustments in order to more fairly distribute these penalties, efforts to reduce hospital readmissions should also more directly address the underlying causes of readmissions. As such, policies should aim at addressing the social and economic determinants of health and readmissions. Many readmissions result from failures in the hospital discharge process and a lack of coordinated transitional care (Arbaje et al. 2008). These failures in transitional care processes often result from social and economic factors that prevent patients from complying with their post-discharge instructions (Krumholz et al. 2014). Therefore, increasing attention towards the social conditions of patients and their ability to access health care services following discharge can serve as an effective means to reduce readmissions. While not all readmissions are considered preventable, the implementation of certain strategies emphasizing the holistic nature of patients' health can help to reduce those readmissions resulting from patients' socioeconomic conditions.

The coordination of transitional care and care management prior to patient discharge can have significant effects on health and readmission outcomes. In particular, comprehensive discharge planning can serve as an effective means to reduce readmissions. For example, achieving an understanding during the hospital stay of what barriers patients may face to accessing care and support outside of the hospital helps hospital workers to better plan for their patients' discharges and ensure that they receive the necessary care and resources. Hospital-based care managers responsible for discharge planning have a unique opportunity to interact with patients and identify individual-level factors that increase their likelihood of readmission. In particular, medical social workers help to improve the discharge process for low-SES patients by connecting these patients

to community-based safety net programs that can directly address their socioeconomic needs (Hansen et al. 2011).

Social worker-led care coordination intervention has been shown to significantly reduce within-30-day hospital readmissions for patients with moderate and high risks of readmission based on their medical conditions. Compared to patients receiving standard post-discharge care, those receiving care coordinated by a medical social worker experience significantly lower readmission rates (Bronstein et al. 2015). These social workers help to decrease hospital readmission rates by assessing patients' socioeconomic conditions and available support systems to more effectively coordinate their discharge care. Social workers provide an individualized approach to addressing patient needs by conducting psychosocial evaluations of patients to identify areas where they require additional assistance with receiving health care and maintaining good health. For example, with particular attention paid towards the individual circumstances of patients, social workers are able to identify those patients who might not have the ability to afford prescribed medications and connect these patients to payment assistance programs. Furthermore, social workers have the opportunity to assess the living conditions of patients and initiate interventions to ensure that they are discharged into an environment that is suitable to fulfilling their health needs. In further collaborating with community-based providers, case managers and social workers manage readmissions by ensuring that patients have access to essential resources and care outside of the hospital (Hunter et al. 2013).

While many health care professionals often lack the time, skills, and community linkages necessary to address the socioeconomic and behavioral factors that influence post-discharge outcomes, applying the skillset of medical social workers and case management professionals can reduce hospital readmissions by ensuring that patients have access to necessary health care

resources following discharge. The training that these individuals receive allows them to identify important indicators of readmission risks and work closely with community organizations to coordinate transitional care. Social worker and case management interventions could thus help to improve post-discharge outcomes for low-SES patients without necessarily increasing the need for medical resource availability (Bronstein et al. 2015). Instead, these interventions connect patients to resources that already exist without requiring an increase in health care resources and associated costs. Studies have demonstrated that this patient-centered social worker intervention improves access to primary care and discharge outcomes while controlling recurrent readmissions in high-risk populations (Kangovi et al. 2014). Furthermore, social workers help to build linkages between hospitals and community-based safety net providers to help ensure that the burden of reducing readmissions does not fall entirely on hospitals themselves (Hunter et al. 2013).

Not only do social workers and case managers have the opportunity to understand patient health needs beyond their immediate medical care and coordinate patient care outside of the hospital, but they also have the opportunity to work directly with the physicians that treat these patents. Physicians themselves can strongly influence the likelihood of patient readmissions through the post-discharge treatment regimens that they recommend. In cases in which physicians are able to choose between two therapeutic options of similar efficacy for treating a patient, physicians can improve patient outcomes by having an awareness of which treatment options will be most accessible to individual patients following discharge in order ensure greater compliancy with necessary care. Furthermore, an understanding of the socioeconomic conditions of patients can allow physicians to identify when certain interventions such as home health services should be ordered to ensure that patients receive proper care outside of the hospital (Hansen et al. 2011). In this regard, physicians should not lower the standard of care that they provide to patients but

instead recognize the complexity of patients' health needs and work to provide treatments that tailor to those needs. Evidence suggests that some physicians do adjust their post-discharge care recommendations according to patients' socioeconomic needs, but these efforts are often limited by what information patients share with physicians (Bernheim et al. 2008). In order to bridge this gap in information between physician and patient, social workers can provide physicians with knowledge regarding the special vulnerability of their patients. Medical school curriculums and physician education programs can also create a greater emphasis on increasing physician understandings of the social and economic determinants of health and how to recognize and treat the complex health conditions of low-SES patients. Overall, efforts to reduce readmission rates should take place not only on the institutional level, but also with those individuals that directly provide care to patients. Increasing patient-centered interventions will help to improve post-discharge patient outcomes and directly address the social and economic causes of disease and readmissions.

With social worker and case management interventions shown to improve patient discharge outcomes, health care policy should aim to increase the ability of hospitals to offer these services. Current Medicare payment policies do not reimburse hospitals for increasing their discharge planning measures. However, the Community-based Care Transitions Program (CCTP) included under the ACA has been implemented as a means to assess the ways in which community-based organizations might partner with hospitals to improve patients' transitions to care settings outside of the hospital such as skilled nursing facilities or patients' homes. The HRRP itself does not provide resources to hospitals to fund readmission reduction interventions and care redesign. However, CMS has begun to provide additional funding for exploring transitional care efforts through complementary programs such as the CCTP. The CCTP aims to test models for improving

care transitions and reducing readmissions and has directed approximately $500 million in funding to hospitals that have applied to test new transition services that improve patient discharge outcomes (Daughtridge et al. 2014). While the CCTP serves as an initial effort to understand what measures can be taken to improve patient discharge processes, further efforts must be made to ensure that these interventions are implemented at institutions requiring their services. With improvements in readmission rates having stagnated after the first few years the HRRP, increasing care transition measures could help to ensure the long-term effectiveness of the program. While comprehensive discharge planning could help to significantly reduce hospital readmissions, hospitals with complex patient populations face greater financial difficulties in implementing potentially costly readmission prevention programs (Baicker & Robbins 2015). Therefore, hospitals that serve larger shares of socioeconomically disadvantaged patients should receive additional support in making these improvements. In order to achieve greater reductions in readmissions, CMS should utilize the savings produced from the HRRP penalties to provide funding to improve discharge measures at these hospitals. Such reforms that increase comprehensive care resources for safety-net hospitals and other hospitals treating similar patient populations would help to ensure that the inequitable distribution of the social determinants of health does not continue to explain disparities in post-discharge outcomes for patients from different socioeconomic backgrounds.

Conclusion

While the HRRP has created a focus on reducing Medicare readmissions as part of a value-based care initiative, if the program remains unchanged it will produce negative consequences for the health of socioeconomically disadvantaged patients. The current approaches applied by CMS

to reduce readmission rates assume that variability in hospital readmissions occur primarily due to differences in hospital performance. However, these approaches do not adequately account for the effects of patient sociodemographic and community factors that influence health care utilization and patient outcomes. Hospitals that serve disproportionate shares of socioeconomically disadvantaged patients who are more vulnerable to readmissions find it more difficult than others to reduce readmissions. As a result, safety-net hospitals and those hospitals that serve generally poorer patient populations are more likely to receive payment penalties under the HRRP. The increased financial strain that these hospitals then face as a result of being disproportionately assessed Medicare payment reductions has the potential to decrease their ability to implement measures to reduce readmissions and improve the quality of care provided to low-SES patients.

Though the HRRP effectively lowers readmissions across the U.S. to improve the macro-allocation of health care, its effects on hospitals that serve vulnerable patients will increase inequity in the health care system. As a result, the HRRP penalty system should be revised to account for the socioeconomic factors that drive readmissions in order to more fairly distribute the penalties according to hospital performance. Furthermore, efforts should be made to directly address the underlying causes of readmissions so that an inequitable distribution of the social determinants of health does not continue to explain differences in readmission outcomes for patients of varying socioeconomic backgrounds. In order to address the underlying causes of readmissions, Medicare policy should focus on providing resources to hospitals to increase comprehensive discharge measures and expand the role of care managers and social workers in improving post-discharge outcomes. Therefore, current efforts to reduce readmissions should undergo changes on both the institutional and individual level to promote justice in the health care system and ensure that patients' health needs are addressed holistically as the sum of both medical and social processes.

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