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Observation Status, Poverty and High Financial Liability among Medicare Beneficiaries

Jennifer N. Goldstein, MD MSc^{*,1,2}, Zugui Zhang, PhD², J. Sanford Schwartz, MD³, and LeRoi S. Hicks, MD MPH^{1,2}

¹Christiana Care Health System; Department of Medicine, 4755 Ogletown-Stanton Rd, Ammon Education Center Suite 2E70, Newark DE 19713

²The Value Institute, Christiana Care Health System, 4755 Ogletown-Stanton Rd, Ammon Education Building, Suite 2E65, Newark DE 19713

³University of Pennsylvania, Division of General Internal Medicine. 1203 Blockley Hall, 423 Guardian Drive University, Philadelphia Pennsylvania 19104

Abstract

Background—Medicare beneficiaries hospitalized under observation status are subject to cost-sharing with no spending limit under Medicare Part B. Since low-income status is associated with increased hospital utilization, there is concern that such beneficiaries may be at increased risk for high utilization and out-of-pocket costs related to observation care. Our objective was to determine whether low-income Medicare beneficiaries are at risk for high utilization and high financial liability for observation care compared to higher-income beneficiaries.

Methods—Retrospective, observational analysis of Medicare Part B claims and US Census Bureau data from 2013. Medicare Beneficiaries with Part A and B coverage for the full calendar year, with one or more observation stay(s) were included in the study. Beneficiaries were divided into quartiles representing poverty level. The association between poverty quartile and high utilization of observation care and poverty quartile and high financial liability for observation care was evaluated.

Results—After multivariate adjustment, the risk of high utilization was higher for beneficiaries in the poor(Q3) and poorest(Q4) quartiles compared to those in the wealthiest quartile(Q1)(AOR 1.21, 95% CI 1.13–1.31; AOR 1.24, 95% CI 1.16–1.33). The risk of high financial liability was

*Corresponding Author: Jgoldstein@christianacare.org; Mobile: 917-836-2886 ; Office: 302-733-6703 Fax: 302-733-6082.

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higher in every poverty quartile compared to the wealthiest and peaked in the 3rd quartile which represented the poor but not the poorest beneficiaries (AOR 1.17, 95% CI 1.10–1.24).

Conclusions—Poverty predicts high utilization of observation care. The poor or near poor may be at highest risk for high liability.

Keywords

Medicare; hospital utilization; health care policy

INTRODUCTION

Observation status, or “hospital outpatient status” is a classification for Medicare beneficiaries that are billed under Medicare Part B for a hospital stay.¹ Medicare Part B has traditionally provided coverage for outpatient care, and prior to 2013, observation patients often “looked” like outpatients. They were “soft admissions” receiving “...services that could be delivered in any setting, including a physician’s office...”² or patients who had not “declared themselves” requiring “...ongoing, short term treatment...and reassessment...”³ before a decision regarding admission or discharge could be made. In 2013, the Centers for Medicare and Medicaid Services (CMS) changed the definition of observation status. In contrast to previous policies which accounted for the patient’s clinical condition, the new policy, called the 2-Midnight Rule only accounts for the anticipated time required for the hospital stay: those with an anticipated length of stay less than 2-midnights are to be hospitalized under observations status, regardless of acuity.¹ Since this rule was enacted, hospitalizations under observation status have increased by 8%, and inpatient admissions have decreased by 2.8%.² This is in addition to a 70% increase in observation stays from 2006–2010³ which has been attributed in part to penalties to hospital systems for inappropriate billing for short-stay admissions⁴ and possibly also broader cultural changes in admitting practices.⁵

Although observation patients and inpatients may be indistinguishable on the medical wards, their cost-sharing responsibilities are different. Under Medicare Part A, inpatients pay a fixed deductible per episode of illness which covers the vast majority of care in the hospital, as well as post-acute nursing care and readmissions within 60 days.⁶ Under observation status, Medicare Part B requires a one-time deductible (\$183 in 2017), 20% cost-sharing for hospital services, and out-of-pocket payments for medications that are not directly related to the primary diagnosis, otherwise known as “self-administered” medications.⁷

While the 60 days of inpatient care provided by the Medicare Part A deductible is structured to protect patients who are at risk for multiple hospitalizations, there is no such protection under Medicare Part B for observation patients, and no limit to the expenses incurred.⁸ Kangovi et al found that patients with more than 1 observation stay within 60 days were at risk of sustaining out-of-pocket costs greater than the Part A deductible.⁸ Low-income beneficiaries are already at increased risk for hospitalization^{9,10,11} and burdened by high out-of-pocket costs.¹² As the cost-sharing structure of Medicare Part B extends further into the hospital setting it is unclear how it will financially impact low-income beneficiaries. Our objective was to examine whether low-income beneficiaries were at higher risk for high

utilization and high out-of-pocket expense related to observation care compared to higher-income beneficiaries.

METHODS

Patient Selection

The Medicare Part B Limited Data Set 5% File from 2013 was used to examine the rate of utilization of observation care and average out-of-pocket costs for patients. Patients were selected if they were hospitalized under observation status (revenue center code 0762) with suitable coverage (Part A and Part B) for the full year of 2013. Publicly available income and poverty data from the US Census Bureau (2013) was merged with the Medicare data by county code.

Measurements, Estimations and Assessments

Patients were categorized into quartiles based on the proportion of their county of residence living under the US Census poverty threshold for 2013. Observation stays were categorized as 1, 2, 3 or more than 3 stays over the calendar year. Out-of-pocket cost for observation was calculated as the sum of the blood deductible (BLDDEDAM), Medicare Part B cash deductible (\$147 in 2013)(PTB-DED) and the co-insurance claim (PTB-COIN) per the specifications of the Chronic Conditions Data Warehouse (September 2015). We defined high utilization as 3 or more observation stays in 12 months, and high financial liability as an annual out-of-pocket cost for observation greater than the 2013 Part A inpatient deductible (\$1184).⁸

Data regarding race, ethnicity, sex, and Charlson Comorbidity Index (CCI) was obtained from Medicare claims data. CCI was calculated for each stay. If the patient had multiple observation stays, the highest CCI score among all stays was used.

Clinical and demographic characteristics were tabulated by poverty quartile. Total out-of-pocket costs for each beneficiary were calculated for each observation stay and cumulative visits over the year. Variables were summarized using means, medians, and standard deviations for continuous data, and percentages for categorical data. Unpaired t-tests or the Wilcoxon rank sum test were used to compare continuous variables and analysis of variance (ANOVA) and the Bonferroni method were used for 4-way comparisons of means, as well for examining the difference among poverty quartiles. The estimated differences in out-of-pocket cost between these groups were examined using non-parametric analysis due to the highly skewed distribution of data.

Two logistic regression models were used to assess whether poverty category was independently associated with 1) high utilization of observation, controlling for age, race, sex, and CCI and 2) high financial liability controlling for the same variables in addition to number of observation visits. All statistical analysis was performed using SAS version 9.3. This study was reviewed and approved by the Christiana Care Institutional Review Board.

RESULTS

Of the 56,454,361 claims, there were 132,539 observation stays representing 67,641 unique Medicare beneficiaries. The study sample represented each U.S. State and 97% (3060/3144) of U.S. counties. The mean household income estimate was \$51,872 (median \$49,584). The mean proportion of the population living in poverty by county was 16.1% (range 3%–55%, IQR 12.2%–19%). Beneficiaries were divided into quartiles according to the poverty rate in their county of residence; (1st Wealthiest: poverty rate : <12.2%, 2nd Wealthy: 12.2%–16.1%, 3rd Poor: 16.1%–19.1% and 4th Poorest: >19.1%).

Table 1 provides descriptive statistics and tabulations for the study population. Beneficiaries in higher poverty quartiles were more likely to be black race, female, and Hispanic. Charlson Comorbidity Index increased with poverty quartile. Repeated use of observation was higher among beneficiaries living in high poverty quartiles compared to low poverty quartiles (Table 1).

The distribution of out-of-pocket costs was highly skewed (median \$448.94; IQR \$273.57–\$870.61). Median out-of-pocket cost for observation care was significantly lower in the poorest quartile (Q4) compared to the wealthiest quartile (Q1) (\$429.45 vs. 464.64, $p<0.001$). The proportion of beneficiaries that sustained high financial liability increased by poverty quartile and peaked in Quartile 3, representing beneficiaries from poor, but not the poorest counties. (Table 1)

Figure 1 illustrates the adjusted odds of high utilization of observation care based on poverty level. There was a stepwise increase in risk of high utilization by poverty quartile with the poor (Q3) and poorest (Q4) quartiles at significantly higher risk compared to the wealthiest quartile (Q1) (21% and 24% higher odds respectively), (Figure 1, Appendix Table 1). Additionally, higher Charlson Comorbidity Index conferred a higher risk for high utilization (AOR 1.18, 95% CI 1.17–1.20), as did black race compared to white race (AOR white race 0.82 95% CI 0.73–0.94; black race=reference) (Appendix Table 1).

Figure 2 illustrates the adjusted odds of sustaining high liability by poverty level. Risk for high liability was significantly higher for all quartiles compared to the wealthiest quartile (Q1), but highest for the poor (Q3) (rather than poorest(Q4)) quartile (Figure 2, Appendix Table 2). Unlike the results for high utilization, we found that higher scores on the Charlson Comorbidity Index were protective against high financial liability and that patients of white race were at higher risk than patients of black race (Appendix Table 2).

DISCUSSION

We found that low-income Medicare beneficiaries are at risk of high utilization of observation care, which is consistent with prior studies that have demonstrated an association between poverty and high utilization of hospital services.^{11,13} We also found that low-income beneficiaries may be at risk of sustaining high financial liability for observation care and that those in the poor but, but not the poorest groups may be at highest risk. Prior studies have demonstrated the disproportionate financial burden of out-of-pocket costs on low-income and “near poor” beneficiaries.^{12,14,15} Our findings suggest that in addition to

paying a higher proportion of their income on out-of-pocket costs,^{12,15} low-income beneficiaries may be responsible for a higher dollar amount related to observation care, even after adjustment for utilization.

We found that chronic disease burden and black race predicted higher utilization of observation services, consistent with prior studies.¹⁶ However we found that both of these variables were protective against high liability. This may partly reflect that patients with more interaction with the health system may be more likely to be enrolled in supportive programs, such as Medicaid or supplemental insurance programs. However, it does not explain the variability in risk of high liability related to race, which should be examined in future studies.

Many Medicare beneficiaries face considerable burden related to health care costs. Prior to the 2-Midnight Rule, one quarter of Medicare beneficiaries spent greater than 30% of their income on health care and 1/10 spent greater than 60%.¹² The 2-Midnight Rule raises the stakes as it extends the cost sharing responsibilities of Medicare Part B to a larger proportion of hospitalized patients. Costs incurred under observation status are also directly related to the services provided and increase dramatically with increased length of stay.¹⁷ A recent report from the Office of the Inspector General found that, overall, 22% of observation stays exceed 2 midnights.² This demonstrates that the reality of observation care is not aligned with the intentions of the 2-Midnight policy. Thus, the high proportion of observation patients with long length of stay combined with the higher cost sharing responsibilities may result in significant unforeseen financial consequences to a large number of Medicare beneficiaries.

It has been estimated that as many as 70% of Medicare beneficiaries fall below 300% the Federal poverty level,¹⁷ and the majority of those eligible for Medicaid, which significantly reduces out-of-pocket spending, are not enrolled.¹⁵ Medigap programs also cover part B expenditures, but these can be costly, averaging approximately \$2000/year,¹⁸ and enrollment has declined in recent years from 35% in 2004 to 19% in 2010.¹⁹

While there have been several recommendations to limit out-of-pocket spending for Medicare beneficiaries from the legislature²⁰ and the Office of the Inspector General,² recent trends in legislation do not support this effort. For example HR2, signed into law in 2015 prohibits new Medicare Beneficiaries from obtaining Medigap policies that cover the Part B deductible,²¹ and discussions surrounding health care reform that seek to limit Medicaid expansion would place more low-income beneficiaries at risk for high out-of-pocket costs.²²

Prior studies have demonstrated that higher copays and cost-sharing has led to rationing of a wide range of health services, particularly among low-income beneficiaries.^{14,23,24} Health care rationing has in turn been associated with worse health outcomes, increased hospitalization and increased health care spending.¹⁴ It is unclear whether the extension of Medicare Part B cost-sharing for hospital services will impact behavior towards observation care in a similar way. Future studies should examine the impact of observation cost-sharing on medical decision-making among Medicare beneficiaries.

Limitations

Our findings are limited by county-level estimates on poverty status and income. However, we found similar trends regarding demographics and utilization as studies that had access to more granular data.^{8,14} Our estimate of out-of-pocket cost does not account for additional out-of-pocket expense for “non-essential” or self-administered medication or the actual or negotiated rates for observation services that were paid by beneficiaries.^{2,8,25} We could not account for patients who were “dual eligible” for Medicaid or who had “Medigap” policies that could potentially cover out-of-pocket cost, within our limited data set. However, in a prior study dual eligible beneficiaries were significantly less likely to sustain high financial liability for observation care.⁸ We used Charlson Comorbidity Index, which was developed to estimate comorbidity burden among hospitalized patients, and not specifically observation patients. However observation patients are hospitalized for many of the same conditions as inpatients, so we believed this was appropriate.² Lastly, we cannot infer causality within the context of this observational study.

Conclusion

We found that poverty predicts high utilization of observation care and that poor or nearly poor Medicare beneficiaries may be at risk for high liability for this care. As observation stays increase and more Medicare beneficiaries are exposed to cost-sharing for hospital care under Medicare Part B, future research should evaluate the impact that these additional out-of-pocket expenses may have on vulnerable elderly patients.

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Clinical Significance

- Poverty predicts high utilization of observation care.
- Poor or nearly poor Medicare beneficiaries may be at risk for high out-of-pocket expense related to observation care.
- Current Medicare cost-sharing policies related to observation care may place disproportionate financial burden on low-income beneficiaries.

Figure 1. Results of Logistic Regression^a: Poverty Category vs High Utilization^b

a. Model adjusted for age, race, sex, and Charlson Comorbidity Index

b. High utilization defined as 3 or more observation stays in 12 months

Figure 2. Results of Logistic Regression^a: Poverty Category vs High Liability^b

a. Model adjusted for age, race, sex, Charlson Comorbidity Index, number of observation stays/12 months

b. High liability defined as out-of-pocket costs >2013 Medicare Part A Deductible, \$1184

Table 1

Baseline characteristics, observation utilization, out-of-pockets cost by poverty quartile

	Income quartile				p-value
	Wealthy →Poor (% population below poverty level)				
	Q1 (<12%)	Q2 (12.1–16.1%)	Q3 (16.1%–19.1%)	Q4 (>19%)	
	(16,665, 24.64%)	(16,981, 25.10%)	(n=17,238, 25.48%)	(n=16,757, 24.77%)	
Race, No.(%)					<0.0001
White	14948 (25.85)	15386 (26.54)	14404 (24.85)	13195 (22.76)	
Black	988 (15.51)	896 (14.06)	1830 (28.72)	2658 (41.71)	
Other	729 (21.85)	699 (20.95)	1004 (30.10)	904 (20.10)	
Hispanic Ethnicity, No(%)	136 (12.60)	178 (16.48)	336 (31.11)	430 (39.81)	<0.0001
Sex, No.(%)					0.03
Female	9957 (24.41)	10184 (24.98)	0378 (25.45)	10256 (25.15)	
Charlson Comorbidity Index (Mean)	1.32	1.35	1.40	1.44	<0.001
Observation visits/12 mos, No.(%)					<0.0001
1	11948 (25.42)	12017 (25.57)	11795 (25.10)	11239 (23.01)	
2	3213 (23.20)	3404 (24.58)	3586 (25.89)	3647 (26.33)	
3	916 (22.25)	950 (23.08)	1116 (27.11)	1134 (27.55)	
>3	588 (21.97)	610 (22.80)	741 (27.69)	737 (27.54)	
Mean (SD)cumulative cost to patient for observation care/12 mos	759.72 (1061.53)	754.8 (1034.59)	762.54 (1060.84)	728.73 (931.15)	
Median cumulative cost to patient for observation care/12 mos	464.64	444.74	452.91	429.45	<0.0001
High Liability*	4,585 (14.52)	2,745 (16.92)	2,651 (18.85)	1,330 (17.04)	<0.0001

* High liability = out of pocket cost > Medicare Part A Deductible 2013 \$1184

Appendix Table 1

Logistic Regression: Adjusted Odds High Utilization by Poverty Quartiles			
Number of observations: 67641			
C-Statistic= 0.61			
	Adjusted Odds Ratio	95% CI	
Wealthiest	Ref		
Wealthy		1.018	0.944–1.097
Poor		1.244	1.157–1.338
Poorest		1.207	1.123–1.297
Charlson Comorbidity Index		1.182	1.167–1.198
Race		0.837	0.771–0.908
Black	Ref		
White		0.822	0.716–0.944
Other		0.888	0.843–0.936
Female		0.888	0.843–0.936
Age			
65–69	Ref		
70–74		1.03	0.947–1.120
75–79		1.162	1.069–1.263
80–84		1.241	1.141–1.350
>84		1.368	1.266–1.478

Appendix Table 2

Logistic Regression: Adjusted Odds High Liability by Poverty Quartiles			
Number of observations: 67641			
C-Statistic=0.7724			
	Adjusted Odds Ratio	95% CI	
Wealthiest	Ref		
Wealthy		1.15	1.09–1.22
Poor		1.17	1.10–1.23
Poorest		1.14	1.04–1.19
Observation Visits/12 mos		3.13	3.05–3.21
Charlson Comorbidity Index		0.97	0.958–0.986
Race			
Black	Ref		
White		1.61	1.48–1.76
Other		1.63	1.43–1.86
Female		1.232	1.177–1.291
Age			
65–69	Ref		
70–74		0.998	0.931–1.069
75–79		0.906	0.844–0.972
80–84		0.741	0.688–0.798
>84		0.592	0.551–0.635