

Improvements to Medicare Disproportionate Share Hospital (DSH) Payments

Final Report: S-10 Benchmarking and Impact Analysis

HHSM-500-2011-00014; Task Order: HHSM-500-TO001

Dobson | DaVanzo



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HHSM-500-2011-00014I; Task Order: HHSM-500-TO001*

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Introduction

Section 3133 of the Affordable Care Act prescribed that Medicare disproportionate share hospital (DSH) payments be allocated to each qualifying hospital based on its share of uncompensated care costs relative to the pool of uncompensated care costs for all subsection (d) hospitals receiving payments under subsection (d)(5)(F). One national source for hospital uncompensated care costs is Worksheet S-10 from the Medicare hospital cost report. Hospitals, hospital associations, and other stakeholders have expressed concerns about the quality and consistency of the data submitted by hospitals through Worksheet S-10. In light of these concerns, the Centers for Medicare & Medicaid Services (CMS), in the FY 2014 Inpatient Prospective Payment System (IPPS) Final Rule, defined a proxy of a hospital's amount of uncompensated care cost (UCC), for the purposes of calculating DSH payments, as the sum of a hospital's Medicare Supplemental Security Income (SSI) days and Medicaid days. Though many hospitals and hospital associations expressed approval of this approach, they also highlighted shortcomings of this definition. One issue is the exclusion of patient days in units or beds excluded from the IPPS. Also, they argued that the use of the proxy for UCC may under-allocate DSH dollars to those hospitals in high-cost market areas and that treat a sicker population of patients. Consequently, they requested that the UCC proxy be adjusted to account for regional differences in wages and case mix associated with providers' patients.

CMS commissioned the Dobson | DaVanzo Team—Dobson | DaVanzo & Associates and KNG Health Consulting—to conduct research to investigate potential adjustments to improve the UCC proxy measure currently used by CMS and to assess the accuracy of the S-10 data against existing and validated data on uncompensated care costs reported to the IRS on Form 990 by not-for-profit hospitals. Because the data submitted through Form 990 are audited and come from an external source, they are a suitable standard for comparison. The benchmarking of existing S-10 data against the Form 990 data could be used to provide a baseline to assess changes in the quality of future S-10 data submitted by hospitals, after implementation of improvements to the S-10. In this report, we first

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present results from the benchmarking of uncompensated care estimates derived from data from Worksheet S-10 to data from IRS Form 990s. Secondly, we report on the effects of adjusting for regional differences in wages and case mix on DSH payments.

Benchmarking S-10 Data Using IRS Form 990 Data

Using data submitted through Schedule H on IRS Form 990, we conducted an analysis to assess the validity and accuracy of S-10 data by comparing uncompensated care costs across the two data sources. We analyzed the UCC share (Factor 3)¹ calculated for each hospital based on the uncompensated care costs obtained from Worksheet S-10 and IRS Form 990.

Description of IRS Form 990, Schedule H

Not-for-profit hospital organizations use IRS Form 990, Schedule H (IRS 990) to provide information on the activities and policies of, and community benefit provided by, their hospital facilities and other non-hospital health care facilities operated during the tax year. Schedule H of the Form 990 does not include a field for uncompensated care costs. Rather, the form asks detailed information about the hospital's cost for providing social services to those patients who received federal assistance and participated in means-tested government programs. The form discusses "financial assistance" (defined as free or discounted health services provided to persons who meet the organization's criteria for financial assistance and are unable to pay for all or a portion of the services) and identifies the number of programs, persons served, and the total community benefit expense (cost) and offsetting revenue. Additionally, this form also allows hospitals to identify their Medicaid payment shortfall and costs for other "means-tested government programs." The form also captures the total amount of bad debt, but does not separate the Medicare and non-Medicare bad debt.

¹ Factor 3 is defined as a hospital's amount of low income insured days relative to the amount of low income insured days for all DSH hospitals expressed as a percentage.

Benchmarking S-10 Data Using IRS Form 990

Challenges of Benchmarking S-10 Data Using IRS Form 990 Data

We faced multiple challenges in benchmarking S-10 data using IRS 990 data. First, IRS 990 forms are only required for not-for-profit hospitals. While Form 990 captures the charity care and bad debt aspects of uncompensated care, the goal of the reporting is to track a not-for-profit hospital's continued responsibility to the community. Second, the IRS Form 990 is filed at the hospital organization level, such as a hospital system. The cost report and S-10 data are reported at the hospital level. For the purpose of the study, we included data for hospital organizations that consist of only one hospital or for which all the hospital(s) share the same Medicare ID in the analysis. Third, the IRS 990 and cost reports include different identifying information for hospitals, which presented challenges in merging the two files. We relied on hospital names and zip codes to match the files. We used a partially manual process to match hospitals across data sources. A detailed data selection process is described in a later section. Fourth, the IRS 990 does not differentiate bad debt costs associated with Medicare and with non-Medicare payers. The Medicare bad debt cost is an essential component of uncompensated care costs in the calculations of DSH payment allocation. The lack of Medicare bad debt in the IRS 990 prevents us from calculating an equivalent Factor 3 across the two data files. Despite these challenges, the IRS 990 data provide a useful benchmark to assess the accuracy of the S-10 data. Moreover, the IRS 990 data may be used to assess improvements in the S-10 data over time by repeating the analysis performed in this report as newer S-10 data become available.

Methodology of Assessing the Accuracy and Validity of Key Worksheet S-10 Variables

We conducted an analysis of the IRS 990 data for tax year 2010 (latest available year) as a benchmark for Worksheet S-10 data. The goal of this analysis was to understand the accuracy and validity of the key variables in Worksheet S-10 data. We focused on the estimation of charity care, bad debt, and shortfalls in the two data files. Following our review of the IRS Form 990, we matched up the two data files using multiple criteria (see Step 1 in the methodology, following Exhibit 1). We determined each hospital's Factor 3 in four ways by defining uncompensated care costs as:

1. Charity care
2. Charity care plus bad debt
3. Charity care plus payment shortfalls
4. Charity care plus bad debt plus payment shortfalls.

The definitions of these terms appear below, followed by Exhibit 1, a comparison of key variables in Worksheet S-10 and IRS 990 data.

Charity Care. IRS Form 990 defines “financial assistance” as free or discounted health services provided to persons who meet the organization's criteria for financial assistance and are unable to pay for all or a portion of the services. Financial assistance does not include bad debt, shortfalls of Medicaid, Medicare, and other means-tested government programs, and other unreimbursed costs. IRS Form 990 uses “financial assistance” and “charity care”

Benchmarking S-10 Data Using IRS Form 990

interchangeably. There are no notable differences found between the definitions of “charity care” in the S-10 data and “financial assistance” in IRS Form 990. Therefore, we assumed the cost of financial assistance in IRS Form 990 is comparable to the cost of charity care in the S-10 data.

Bad Debt. We note that the Worksheet S-10 defines the uncompensated care costs excluding the cost of Medicare bad debt expenses. However, the IRS Form 990 does not break out information regarding a hospital’s Medicare and non-Medicare bad debt expenses. For the purpose of this analysis, we compared the cost of total bad debt expense (Line 2 Part III) in IRS Form 990 and the “cost of bad debt expense for the entire facility” (Line 26) times Cost to charge ratio (Line 1) in the Worksheet S-10 data.

Shortfalls. We also note that the Worksheet S-10 defines the non-Medicare unreimbursed cost as for Medicaid, State Children's Health Insurance Program (SCHIP), and state and local indigent care programs. In the IRS 990 data, we found two related variables: unreimbursed Medicaid (Line 7b) and unreimbursed costs- other means-tested government programs (Line 7c). Examples of “other means-tested government programs” were the SCHIP, and other federal, state, or local health care programs. We assumed that Line 19 in S-10 was comparable to Line 7b (L7b) plus Line 7c (L7c) in IRS 990 Part I.

Uncompensated Care Costs. We constructed estimates of uncompensated care costs in the two files using four definitions of uncompensated care costs (defined above). The definitions of UCC differ between the IRS 990 and S-10 because of differences in how bad debt is reported. So, we would expect the measures of UCC to differ across the two sources.

Exhibit 1: Key Variables in the IRS 990 and Worksheet S-10 data, Components of Uncompensated Care Costs

Category	IRS 990	Worksheet S-10
Charity care	1) Cost of financial assistance (L7a Part I)	1) Cost of charity care (L23)
Bad debt	1) Bad debt expense at cost (L2 Part III) 2) N/A	1) Cost of total bad debt expense= Total bad debt charge for the entire facility (L26) * Cost to charge ratio (L1) 2) Cost of non-Medicare bad debt expense (L29)= (Total bad debt expense for the entire facility (L26) – Medicare bad debts (L27)) * Cost to charge ratio (L1)
Shortfalls	1) Unreimbursed Medicaid (L7b Part I) 2) Unreimbursed costs (other means-tested government programs) (L7c Part I)	1) Total unreimbursed cost for Medicaid, SCHIP and state and local indigent care programs (L19) 2) Total unreimbursed cost for Medicaid, SCHIP and state and local indigent care programs (L19)

Notes: L = Line; * L7d Part I =L7a Part I + L7b Part I + L7c Part I

Benchmarking S-10 Data Using IRS Form 990

Exhibit 2: Key Variables in the IRS 990 and Worksheet S-10 data, Measures of Uncompensated Care Costs

Category	IRS 990	Worksheet S-10
Cost of uncompensated care (with charity care)	L7a Part I	L23
Cost of uncompensated care (with charity care + bad debt)	L7a Part I + Line 2 Part III	L30 = L23 + L29
Cost of uncompensated care (with charity care and shortfalls)	L7d Part I*	L23+L19
Cost of uncompensated care (with charity care, bad debt, and shortfalls)	L7d Part I* + Line 2 Part III	L31 = L23 + L29 + L19

Notes: L = Line; * L7d Part I = L7a Part I + L7b Part I + L7c Part I

Using the matched hospitals, we then calculated the Factor 3s for each hospital using the costs of uncompensated care obtained. Since Factor 3 is the key variable to determine the DSH payment amount for each hospital, we compared the Factor 3 distributions calculated using data from IRS Form 990 and Worksheet S-10.

Data Selection and Sample Characteristics

There were 4,359 hospitals affiliated with 2,464 hospital organizations in the 2010 IRS 990 data. The hospital organizations’ financial periods ended from December 2010 to November 2011². There were 3,417 hospitals with completed worksheet S-10 data with reporting periods ending from April 2011 to April 2012.

To better compare the key variables in the two data files, we restricted our analysis to hospitals with the same reporting period. After matching up the two files, we obtained a total of 766 hospitals in our sample: 524 of them are “DSH” hospitals, and the remaining 242 are “Non-DSH” hospitals. The classification of hospitals as “DSH” and “Non-DSH” hospitals were based on the CMS’ determination of which hospitals will receive Medicare DSH payments as reported in the FY 2014 IPPS final rule impact file. Exhibits 3 to 8 present the characteristics of the hospitals in the sample and the not-for-profit hospitals in FY 2014 IPPS final rule impact file.

We notice that a slightly larger proportion of rural hospitals were included in the analysis. Other than that, no notable pattern is found in the distribution of hospitals in terms of hospital location, size, U.S. Census region, and teaching status. We found some differences in the distribution of not-for-profit hospitals in our sample and all DSH hospitals across states. The proportion of hospitals in Connecticut, Georgia, Massachusetts, Michigan, Rhode Island, and Wisconsin in our sample is larger than the national level, while the proportion of

² In the IRS 990 form, there is no day information on ending tax period, while the S-10 data contain the date of the ending reporting period. Therefore, for the IRS 990 data, we assumed that the ending date of the tax period was the last day of the month when the fiscal period ended. For example, a hospital reported its tax period ended in June 2011, we assumed that its tax period ended on June 30th, 2011. In addition, the IRS 990 form does not contain the starting time of the tax period. We assumed the tax period for all the hospital organizations was one year.

Benchmarking S-10 Data Using IRS Form 990

hospitals in California, New Jersey, New York, Ohio, Pennsylvania, and Texas is lower than the national level. Our sample exhibits bias against hospitals in New Jersey and New York. No hospitals in the two states were included in the analysis.

Exhibit 3: Hospital Characteristics in the Sample and in the FY 2014 CMS Impact File

	All Not-for Profit Hospitals In the Sample (Percentage)	All Not-for Profit Hospitals In the FY 2014 Impact File (Percentage)	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2014 Impact File (Percentage)
All Hospitals	766 (100%)	2091 (100%)	524 (100%)	1428 (100%)

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990.

DSH hospitals were those expected to receive Medicare DSH payments based on the FY 2014 IPPS final rule impact file.

Exhibit 4: Hospital Characteristics in the Sample and in the FY 2014 CMS Impact File by Geographic Location

Geographic Location	All Not-for Profit Hospitals In the Sample (Percentage)	All Not-for Profit Hospitals In the FY 2014 Impact File (Percentage)	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2014 Impact File (Percentage)
Urban Hospitals	69.3%	75.2%	74.8%	79.3%
Large Urban Areas	34.5%	41.8%	33.4%	41.3%
Other Urban Areas	34.9%	33.4%	41.4%	38.0%
Rural Hospitals	30.2%	24.2%	25.2%	20.7%
Unknown	0.5%	0.6%	0.0%	0.0%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990.

DSH hospitals were those expected to receive Medicare DSH payments based on the FY 2014 IPPS final rule impact file.

Exhibit 5: Hospital Characteristics in the Sample and in the FY 2014 CMS Impact File by Bed Size

Bed Size	All Not-for Profit Hospitals In the Sample (Percentage)	All Not-for Profit Hospitals In the FY 2014 Impact File (Percentage)	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2014 Impact File (Percentage)
0 to 99 Beds	31.5%	30.9%	27.1%	24.4%
100 to 249 Beds	38.1%	38.2%	38.2%	39.9%
250 to 499 Beds	22.2%	22.5%	24.0%	25.0%
500 to 749 Beds	5.4%	5.5%	7.6%	7.5%
750 or More Beds	2.3%	2.3%	3.1%	3.2%
Unknown	0.5%	0.6%	0.0%	0.0%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990.

DSH hospitals were those expected to receive Medicare DSH payments based on the FY 2014 IPPS final rule impact file.

Benchmarking S-10 Data Using IRS Form 990

Exhibit 6: Hospital Characteristics in the Sample and in the FY 2014 CMS Impact File by Region

Region	All Not-for Profit Hospitals In the Sample (Percentage)	All Not-for Profit Hospitals In the FY 2014 Impact File (Percentage)	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2014 Impact File (Percentage)
East North Central	19.5%	19.1%	21.0%	19.9%
East South Central	7.6%	6.7%	9.0%	8.3%
Middle Atlantic	11.1%	15.7%	9.9%	14.8%
Mountain	3.8%	5.5%	2.5%	4.3%
New England	13.1%	6.2%	13.2%	6.4%
Pacific	6.8%	11.7%	8.2%	12.0%
Puerto Rico	0.1%	1.1%	0.0%	1.1%
South Atlantic	22.7%	15.2%	21.4%	15.0%
West North Central	7.7%	8.8%	5.7%	7.3%
West South Central	7.2%	9.4%	9.2%	10.9%
Unknown	0.5%	0.6%	0.0%	0.0%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990.

DSH hospitals were those expected to receive Medicare DSH payments based on the FY 2014 IPPS final rule impact file.

Exhibit 7: Hospital Characteristics in the Sample and in the FY 2014 CMS Impact File by Teaching Status

Teaching Status	All Not-for Profit Hospitals In the Sample (Percentage)	All Not-for Profit Hospitals In the FY 2014 Impact File (Percentage)	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2014 Impact File (Percentage)
100 or more residents	6.7%	7.6%	8.4%	10.2%
Fewer than 100 residents	27.8%	28.6%	30.7%	30.7%
Nonteaching	65.0%	63.3%	60.9%	59.1%
Unknown	0.5%	0.6%	0.0%	0.0%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990.

DSH hospitals were those expected to receive Medicare DSH payments based on the FY 2014 IPPS final rule impact file.

Benchmarking S-10 Data Using IRS Form 990

Exhibit 8: State Distribution of Hospitals in the Sample and in the FY 2014 Impact File				
State	All Not-for Profit Hospitals In the Sample (Percentage)	All Not-for Profit Hospitals In the FY 2014 Impact File (Percentage)	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2014 Impact File (Percentage)
All Hospitals	766 (100.0%)	2091 (100%)	524 (100%)	1428 (100%)
Alabama	1.4%	1.7%	1.5%	2.0%
Alaska	0.1%	0.2%	0.0%	0.1%
Arizona	0.9%	1.2%	0.4%	1.2%
Arkansas	1.2%	1.3%	1.5%	1.6%
California	5.0%	8.2%	6.7%	8.1%
Colorado	0.5%	1.5%	0.4%	1.3%
Connecticut	3.9%	1.4%	4.2%	1.5%
Delaware	0.4%	0.2%	0.4%	0.3%
District of Columbia	0.3%	0.2%	0.4%	0.3%
Florida	4.2%	3.5%	3.8%	3.7%
Georgia	4.4%	2.1%	5.7%	2.7%
Hawaii	0.4%	0.3%	0.4%	0.2%
Idaho	0.5%	0.2%	0.8%	0.3%
Illinois	6.1%	5.3%	6.7%	5.9%
Indiana	2.0%	2.3%	2.7%	2.7%
Iowa	1.4%	1.3%	1.1%	1.2%
Kansas	1.3%	1.5%	0.8%	0.8%
Kentucky	2.2%	2.1%	2.9%	2.7%
Louisiana	1.0%	1.2%	1.5%	1.5%
Maine	1.3%	0.9%	1.0%	0.8%
Maryland	4.4%	2.1%	0.0%	0.0%
Massachusetts	4.6%	2.5%	5.2%	3.0%
Michigan	5.4%	3.4%	6.1%	3.4%
Minnesota	0.9%	2.1%	0.8%	2.2%
Mississippi	1.7%	1.0%	2.3%	1.3%
Missouri	2.2%	2.4%	1.3%	2.0%
Montana	0.7%	0.5%	0.6%	0.4%
Nebraska	0.9%	0.8%	1.0%	0.6%
Nevada	0.3%	0.5%	0.2%	0.2%
New Hampshire	1.2%	0.5%	1.0%	0.4%
New Jersey	0.0%	3.0%	0%	2.5%
New Mexico	0.7%	0.5%	0%	0.2%
New York	0.0%	6.6%	0%	6.9%
North Carolina	3.5%	2.4%	4.4%	3.0%
North Dakota	0.3%	0.2%	0.2%	0.3%
Ohio	1.8%	5.4%	1.7%	5.5%
Oklahoma	1.7%	1.5%	2.3%	1.9%
Oregon	0.9%	1.4%	0.8%	1.7%
Pennsylvania	11.2%	6.1%	9.9%	5.5%
Puerto Rico	0.1%	1.1%	0.0%	1.1%

Benchmarking S-10 Data Using IRS Form 990

State	All Not-for Profit Hospitals In the Sample (Percentage)	All Not-for Profit Hospitals In the FY 2014 Impact File (Percentage)	DSH Hospitals In the Sample (Percentage)	DSH Hospitals In the FY 2014 Impact File (Percentage)
Rhode Island	1.4%	0.5%	1.3%	0.5%
South Carolina	1.2%	1.2%	1.3%	1.3%
South Dakota	0.7%	0.5%	0.6%	0.4%
Tennessee	2.2%	2.1%	2.3%	2.4%
Texas	3.3%	5.4%	3.8%	5.8%
Utah	0.1%	0.8%	0.0%	0.8%
Vermont	0.8%	0.3%	0.6%	0.2%
Virginia	2.7%	2.6%	3.2%	2.5%
Washington	0.4%	1.7%	0.4%	2.0%
West Virginia	1.7%	1.1%	2.1%	1.3%
Wisconsin	4.3%	2.8%	3.8%	2.5%
Wyoming	0.1%	0.2%	0.2%	0.0%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990.

DSH hospitals were those expected to receive Medicare DSH payments based on the FY 2014 IPPS final rule impact file.

Some hospitals in our sample were not categorized as not-for-profit hospitals in the FY 2014 IPPS final rule impact file.

Benchmarking S-10 Data Using IRS Form 990

A step-by-step summary of our methodology is presented below.

Step 1: Match up Hospitals in Worksheet S-10 and IRS 990: Exclusion and Inclusion Criteria

- a. In the IRS 990 data, hospitals that have separate Medicare IDs within a hospital system are excluded from the analysis. Information on 1,381 hospitals was included in the IRS 990 data.
- b. In the Worksheet S-10 data, hospitals with reporting period ending after November 2011³ were excluded from the analysis. Information on 1,822 hospitals was included in the Worksheet S-10 data.
- c. Data on 792 hospitals were obtained after matching up the two data files.
- d. Hospitals that have Worksheet S-10 data and IRS 990 data for the same fiscal period are included in the analysis. Data on a total of 766 hospitals were included in the analysis.

Step 2: Identify IPPS Hospitals to be Included

- a. CMS provided a list of hospitals projected to receive Medicare DSH payments in 2014
- b. Hospitals involved in the Rural Community Demonstration or hospitals that receive hospital-specific payments are considered "Non-DSH" hospitals

Step 3: Determine Key Variables in IRS Form 990

- a. Charity care costs= Cost of financial assistance (Line 7a Part I)
- b. Bad debt expense= Cost of bad debt expense (Line 2 Part III)
- c. Non-Medicare unreimbursed costs= Unreimbursed Medicaid (Line 7b Part I)+ Unreimbursed costs –other means-tested government programs (Line 7c Part I)
- d. We set any negative value of the variables above to zero for the purpose of this analysis.

Step 4: Calculate Uncompensated Care Cost in IRS Form 990

- a. Cost of Charity Care= Cost of financial assistance (Line 7a Part I)
- b. Cost of Uncompensated Care = Cost of financial assistance (Line 7a Part I)+ Cost of bad debt expense (Line 2 Part III)
- c. Cost of Financial Assistance with Shortfalls= Cost of financial assistance and means-tested government programs (Line 7d Part I)
- d. Cost of Uncompensated Care with Shortfalls= Cost of financial assistance and means-tested government programs (Line 7d Part I)+ Cost of bad debt expense (Line 2 Part III)

Step 5: Negative Values in S-10 data

- a. To ensure that no hospital has a negative uncompensated care cost (resulting in negative uncompensated care payments), any negative values for Line 30 or Line 31 are set to zero for purposes of modeling in S-10.

Step 6: Calculate Factor 3

- a. Using the matched hospitals, Factor 3 is calculated as the provider's non-Medicare uncompensated care costs with and without including the non-Medicare unreimbursed costs divided by the sum of the uncompensated care costs across all DSH hospitals

³ We restricted data in this way because no hospital filed the IRS Form 990 after November 2011 in the available data.

Benchmarking S-10 Data Using IRS Form 990

Drivers of the Variation

With our sample, we calculated a ratio for each key variable by using the value for the variable from the S-10 data divided by the value for the corresponding variable in the IRS 990 data. We performed descriptive analysis for the ratio of each key variable in the complete sample and for DSH hospitals only (Exhibit 9 and 10). The results show the following:

1. For most key variables, the S-10 data tended to have lower values.
2. Large variations are found for non-Medicare unreimbursed costs across the two data files, which results in large variations in uncompensated care costs (with non-Medicare unreimbursed costs included) between IRS 990 and Worksheet S-10 data.
3. Comparing UCC with non-Medicare unreimbursed costs, less variation was observed across the two files in UCC based on charity care and bad debt.

Exhibit 9. Percentiles and Means of Ratios of Key Variables in IRS 990 and Worksheet S-10 for All Hospitals in Sample* (N=766)

Key variables	1%	10%	25%	50%	75%	90%	99%	Mean	#
Charity care	0.0	0.1	0.5	0.8	1.0	1.3	4.7	1.0	762
Bad debt expense	0.0	0.0	0.4	0.9	1.0	1.1	2.7	0.8	757
Non-Medicare Unreimbursed costs	0.0	0.0	0.0	0.1	0.3	0.5	1.4	0.6	719
Charity care + Unreimbursed costs	0.0	0.0	0.1	0.3	0.4	0.7	3.3	0.4	763
Uncompensated care costs	0.0	0.2	0.5	0.8	0.9	1.1	2.2	0.8	763
Uncompensated care + Unreimbursed costs	0.0	0.1	0.2	0.3	0.5	0.7	2.0	0.4	763

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

*All the ratios were calculated using data in Worksheet S-10 data as numerators, and data in IRS 990 as denominators.

Exhibit 10. Percentiles and Means of Ratios of Key Variables in IRS 990 and Worksheet S-10 for DSH Hospitals* (N=524)

Key variables	1%	10%	25%	50%	75%	90%	99%	Mean	#
Charity care	0.0	0.2	0.6	0.8	1.0	1.3	4.7	1.0	522
Bad debt expense	0.0	0.0	0.4	0.9	1.0	1.1	2.0	0.8	517
Non-Medicare Unreimbursed costs	0.0	0.0	0.0	0.1	0.3	0.4	1.3	0.6	510
Charity care + Unreimbursed costs	0.0	0.1	0.1	0.2	0.4	0.6	2.6	0.4	522
Uncompensated care costs	0.0	0.2	0.5	0.8	0.9	1.2	2.2	0.8	522
Uncompensated care + Unreimbursed costs	0.0	0.1	0.2	0.3	0.4	0.6	1.9	0.4	522

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

*All the rates were calculated using data in Worksheet S-10 data as numerators, and data in IRS 990 as denominators.

In examining the ratios between key variables in the IRS 990 data and S-10 data, we do not find similar magnitudes between the two data sets (i.e., few of the ratios equal 1.0). A more

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meaningful approach to comparing these data sets is to calculate Factor 3⁴ using both data sets and compare the estimated Factor 3s. By conducting this comparison, we are able to assess whether the distribution of Medicare DSH dollars would be different if the IRS 990 data were used instead of the S-10 data.

Comparison of the Distribution of Factor 3

We calculated Factor 3 using different uncompensated care costs obtained in our sample under current law. In Exhibits 11 to 14 present the comparisons of Factor 3 based on different uncompensated care costs in the S-10 data and IRS 990 data. As mentioned above, Factor 3 was calculated based on uncompensated care costs with and without including bad debt and non-Medicare unreimbursed costs. For each comparison, we dropped observations where the ratio of uncompensated care costs in the S-10 to the costs in the IRS Form 990 fell above the 95th and below the 5th percentiles⁵. This allowed the distribution of Factor 3s not to be impacted by outliers with extreme variations between the two data sets. We standardized Factor 3 values so that the summed Factor 3s calculated in either base data were 1. The findings are:

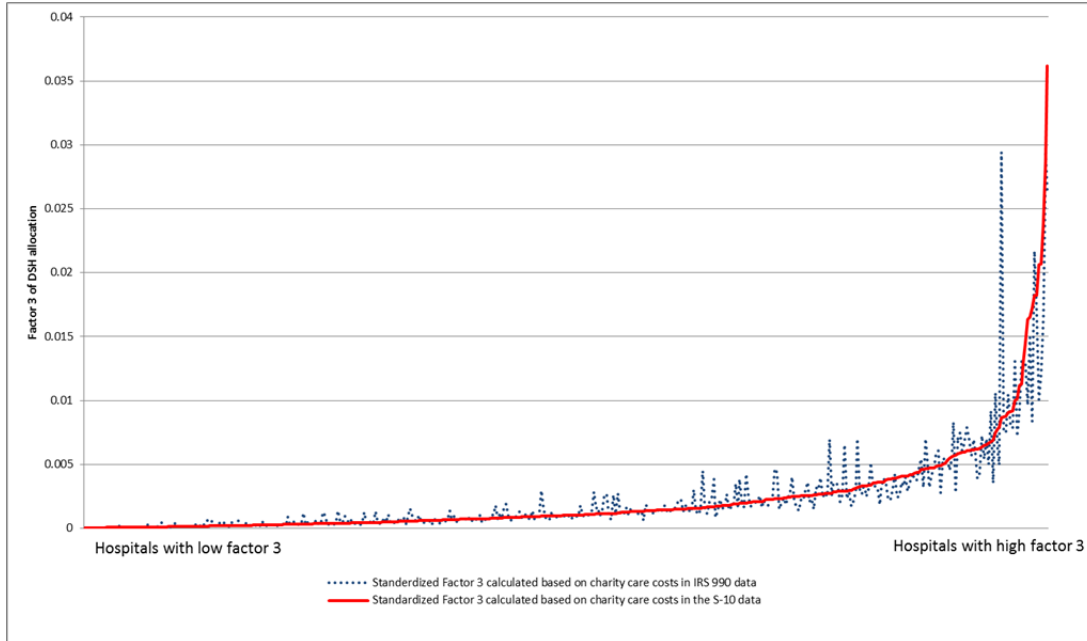
1. Providers with larger Factor 3s in the S-10 data were more likely to have large Factor 3s in the IRS 990 data, regardless of how Factor 3 was calculated. This relationship was more significant for the calculations that do not use non-Medicare unreimbursed care costs.
2. Compared with those Factor 3s calculated without using non-Medicare unreimbursed costs, Factor 3s calculated using non-Medicare unreimbursed costs in IRS 990 data present larger discrepancies from the counterparts based on S-10 data.

⁴ Factor 3 is defined as a hospital's amount of low income insured days relative to the amount of low income insured days for all DSH hospitals expressed as a percentage.

⁵ For the comparison of Factor 3 calculated based on charity care costs, we dropped observations where the ratio of uncompensated care costs in the S-10 to the costs in the IRS Form 990 fell above the 95th and below the 10th percentiles because there are more than 5% of data have 0 value for this variable.

Benchmarking S-10 Data Using IRS Form 990

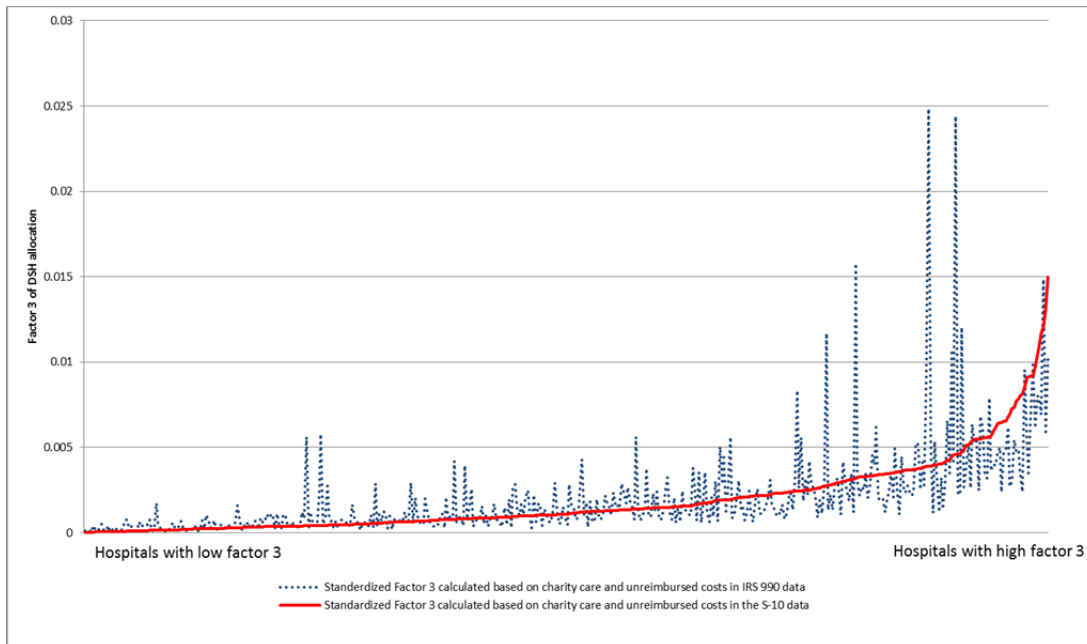
Exhibit 11. Distribution of Factor 3s based on charity care costs in IRS-990 and S-10 data



Note: Hospitals are ranked by their Factor 3, as calculated using S-10 data, resulting in a smooth S-10 line.

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

Exhibit 12. Distribution of Factor 3s based on charity care and unreimbursed costs* in IRS-990 and S-10 data



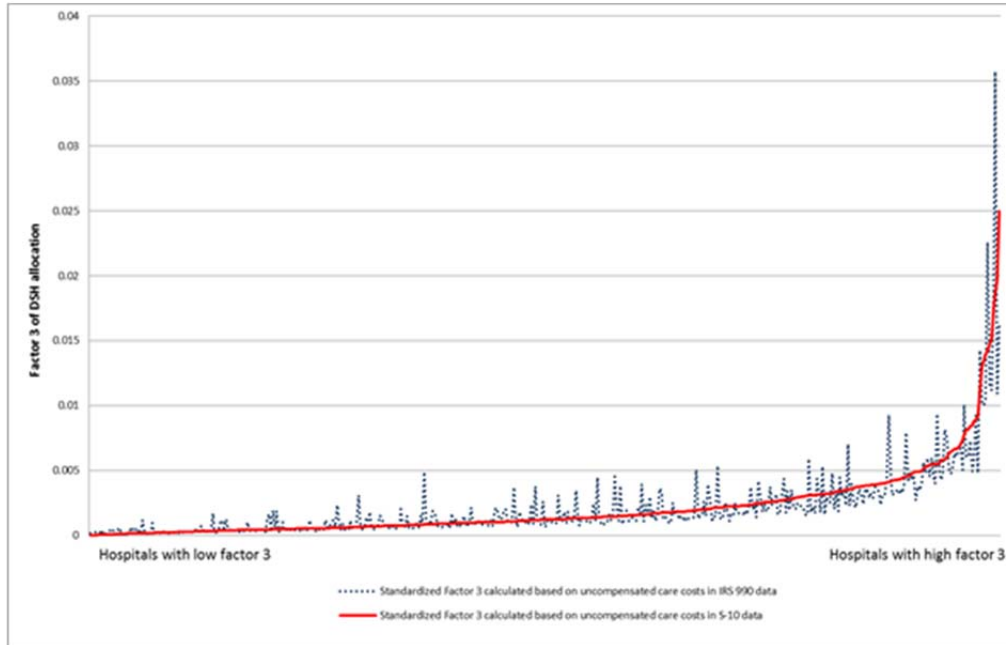
*Charity care plus payment shortfalls.

Note: Hospitals are ranked by their Factor 3, as calculated using S-10 data, resulting in a smooth S-10 line.

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS990.

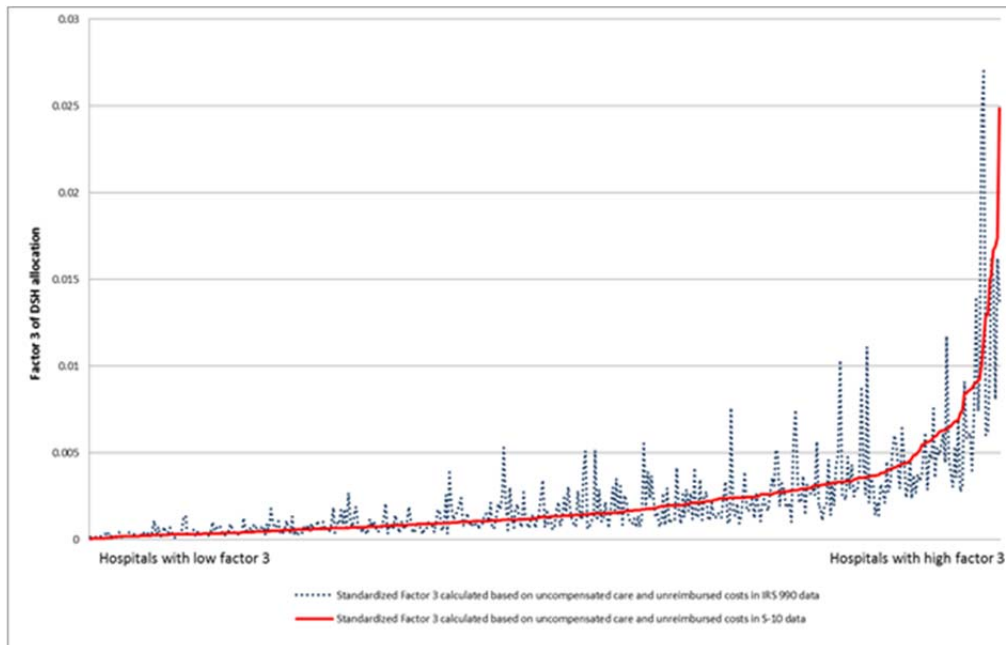
Benchmarking S-10 Data Using IRS Form 990

Exhibit 13. Distribution of Factor 3s based on uncompensated care costs* in IRS-990 and S-10 data



*Charity care plus bad debts. Note: Hospitals are ranked by their Factor 3, as calculated using S-10 data, resulting in a smooth S-10 line. Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

Exhibit 14. Distribution of Factor 3s based on uncompensated care and unreimbursed costs* in IRS-990 and S-10 data



*Charity care plus bad debt plus payment shortfalls. Note: Hospitals are ranked by their Factor 3, as calculated using S-10 data, resulting in a smooth S-10 line. Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

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Analysis of the Differences between Factor 3s in IRS 990 and Worksheet S-10 Data by Hospital Type

Using the Factor 3s estimated from the two data files, we conducted a distributional analysis to determine how the differences between Factor 3s calculated from the two data sources would shift across hospital types. We assessed the differences between Factor 3 by absolute percent change, which was estimated as the absolute differences between the Factor 3s in the two data sets relative to Factor 3 in Worksheet S-10 data. This analysis is focusing on hospitals expected to receive Medicare DSH payments in 2014 (N=524). Factor 3 was calculated by uncompensated care costs with and without including bad debt and non-Medicare unreimbursed costs. Exhibits 15 to 34 present the results. Our key findings are:

1. Hospitals have a relatively small difference in Factor 3 when the UCC was defined as only charity care costs (median difference of 16%) as compared with Factor 3s calculated based on other definitions of UCC (Exhibits 15 to 19). Half of the hospitals have a difference in Factor 3 of 25% or more when Factor 3s were calculated with the inclusion of bad debt (Exhibits 25 to 29 and 30 to 34).
2. Compared with those in large urban areas or rural areas, hospitals in small urban areas tend to experience smaller variations in the differences in the Factors 3s calculated in the two data sets.
3. When UCC is defined as the charity care costs only (Exhibits 15 to 19), hospitals in the South Atlantic region, hospitals with 250-749 beds, and large teaching hospitals tend to have a much smaller difference in the Factor 3s calculated in the two data sets as compared with those in other regions, those with other bed sizes, or in other teaching status categories.
4. When UCC is defined as the charity care and non-Medicare reimbursed costs (Exhibits 20 to 24), the difference in Factor 3 exhibits extremely large variations where Factor 3 calculated in the 990 data are more than 1300% higher than the value calculated in the Worksheet S-10 data. These extreme values are largely driven by a much larger non-Medicare reimbursed cost in the IRS 990 data as compared with the corresponding variable in the Worksheet S-10 data, and a much larger non-Medicare reimbursed cost than charity care cost in the IRS 990 data.

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Exhibit 15. Distribution of Absolute Percent Change Factor 3 Calculated by Charity Care Costs in IRS 990 and Worksheet S-10 data *

	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
All hospitals	442	0%	2%	4%	8%	16%	39%	104%	182%	312%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data.

Exhibit 16. Distribution of Absolute Percent Change Factor 3 Calculated by Charity Care Costs in IRS 990 and Worksheet S-10 data by Geographic Location*

Geographic Location	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
Large Urban Areas	149	0%	3%	5%	9%	17%	33%	113%	175%	270%
Other Urban Areas	186	0%	2%	4%	7%	16%	38%	96%	145%	301%
Rural Hospitals	107	0%	1%	2%	8%	16%	49%	132%	212%	312%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data.

Exhibit 17. Distribution of Absolute Percent Change Factor 3 Calculated by Charity Care Costs in IRS 990 and Worksheet S-10 data by Bed Size*

Bed Size	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
0 to 99 Beds	115	1%	1%	5%	7%	14%	33%	158%	215%	312%
100 to 249 Beds	167	0%	1%	4%	9%	17%	45%	109%	187%	301%
250 to 499 Beds	112	0%	3%	5%	9%	18%	35%	60%	135%	193%
500 to 749 Beds	33	0%	2%	3%	9%	20%	29%	48%	129%	169%
750 or More Beds	15	4%	4%	6%	7%	26%	49%	139%	258%	258%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data.

Benchmarking S-10 Data Using IRS Form 990

Exhibit 18. Distribution of Absolute Percent Change Factor 3 Calculated by Charity Care Costs in IRS 990 and Worksheet S-10 data by Region*

Region	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
New England	60	0%	1%	4%	10%	23%	45%	116%	212%	278%
Middle Atlantic	44	1%	1%	2%	5%	9%	21%	42%	49%	301%
South Atlantic	93	1%	5%	6%	9%	15%	38%	59%	154%	248%
East North Central	94	0%	1%	2%	6%	16%	35%	98%	158%	277%
East South Central	40	5%	6%	7%	14%	29%	102%	193%	278%	301%
West North Central	26	0%	3%	4%	6%	15%	80%	151%	201%	212%
West South Central	43	1%	2%	2%	6%	16%	28%	74%	195%	312%
Mountain	8	1%	1%	1%	11%	28%	75%	242%	242%	242%
Pacific	34	4%	5%	7%	11%	19%	36%	49%	135%	187%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data..

Exhibit 19. Distribution of Absolute Percent Change Factor 3 Calculated by Charity Care Costs in IRS 990 and Worksheet S-10 data by Teaching Status*

Teaching Status	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
Nonteaching	265	0%	2%	4%	7%	15%	36%	108%	199%	312%
Fewer than 100 residents	136	0%	2%	5%	9%	20%	48%	135%	175%	301%
100 or more residents	41	0%	3%	5%	8%	18%	29%	39%	49%	93%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data.

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Exhibit 20. Distribution of Absolute Percent Change Factor 3 Calculated by Charity Care and Unreimbursed Costs in IRS 990 and Worksheet S-10 data*

Hospital Type	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
All hospitals	469	0%	3%	8%	19%	38%	60%	146%	198%	425%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data.

Exhibit 21. Distribution of Absolute Percent Change Factor 3 Calculated by Charity Care and Unreimbursed Costs in IRS 990 and Worksheet S-10 data by Geographic Location*

Geographic Location	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
Large Urban Areas	156	0%	5%	12%	23%	41%	74%	200%	354%	1355%
Other Urban Areas	196	1%	3%	7%	20%	40%	75%	213%	412%	1365%
Rural Hospitals	116	0%	7%	13%	27%	53%	107%	262%	495%	878%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data.

Exhibit 22. Distribution of Absolute Percent Change Factor 3 Calculated by Charity Care and Unreimbursed Costs in IRS 990 and Worksheet S-10 data by Bed Size*

Bed Size	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
0 to 99 Beds	126	0%	4%	7%	20%	42%	86%	285%	398%	1001%
100 to 249 Beds	177	2%	7%	11%	22%	46%	95%	212%	302%	1176%
250 to 499 Beds	114	0%	2%	10%	23%	38%	68%	151%	375%	1355%
500 to 749 Beds	35	1%	3%	5%	24%	40%	62%	259%	420%	1365%
750 or More Beds	16	6%	6%	19%	24%	47%	144%	457%	565%	565%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data.

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Exhibit 23. Distribution of Absolute Percent Change Factor 3 Calculated by Charity Care and Unreimbursed Costs in IRS 990 and Worksheet S-10 data by Region*

Region	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
New England	66	0%	4%	9%	21%	41%	69%	179%	259%	297%
Middle Atlantic	45	1%	4%	11%	23%	52%	150%	451%	483%	1001%
South Atlantic	98	1%	4%	6%	18%	38%	63%	93%	240%	1365%
East North Central	95	2%	9%	16%	30%	49%	92%	226%	322%	495%
East South Central	44	7%	10%	12%	21%	53%	133%	577%	815%	925%
West North Central	28	3%	4%	7%	38%	68%	186%	221%	286%	557%
West South Central	44	0%	1%	5%	19%	34%	56%	190%	363%	708%
Mountain	11	3%	3%	4%	7%	55%	112%	350%	1176%	1176%
Pacific	37	1%	3%	13%	19%	38%	56%	151%	200%	1355%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990.

*Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data.

Exhibit 24. Distribution of Absolute Percent Change Factor 3 Calculated by UCC and Unreimbursed costs in IRS 990 and Worksheet S-10 data by Teaching Status*

Teaching status	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
Nonteaching	278	0%	2%	8%	19%	39%	57%	127%	213%	425%
Fewer than 100 residents	151	0%	4%	8%	18%	36%	64%	139%	179%	387%
100 or more residents	40	3%	4%	8%	18%	41%	87%	194%	222%	225%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC equals charity care plus bad debt.

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Exhibit 25. Distribution of Absolute Percent Change Factor 3 Calculated by UCC in IRS 990 and Worksheet S-10 data *

Hospital Type	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
All hospitals	469	0%	3%	6%	15%	25%	44%	126%	243%	546%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC equals charity care plus bad debt.

Exhibit 26. Distribution of Absolute Percent Change Factor 3 Calculated by UCC in IRS 990 and Worksheet S-10 data by Geographic Location*

Geographic Location	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
Large Urban Areas	157	0%	2%	6%	17%	26%	50%	158%	294%	550%
Other Urban Areas	198	0%	2%	6%	15%	24%	40%	92%	147%	474%
Rural Hospitals	114	0%	3%	6%	13%	24%	44%	248%	304%	506%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC equals charity care plus bad debt.

Exhibit 27. Distribution of Absolute Percent Change Factor 3 Calculated by UCC in IRS 990 and Worksheet S-10 data by Bed Size*

Bed Size	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
0 to 99 Beds	126	0%	3%	6%	17%	27%	45%	181%	372%	506%
100 to 249 Beds	181	0%	3%	6%	15%	25%	44%	113%	174%	410%
250 to 499 Beds	116	1%	4%	8%	15%	24%	45%	158%	231%	546%
500 to 749 Beds	32	0%	1%	1%	6%	17%	30%	77%	82%	98%
750 or More Beds	14	1%	1%	14%	19%	31%	66%	234%	497%	497%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC equals charity care plus bad debt.

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Exhibit 28. Distribution of Absolute Percent Change Factor 3 Calculated by UCC in IRS 990 and Worksheet S-10 data by Region*

Region	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
New England	65	0%	1%	3%	12%	24%	36%	46%	88%	138%
Middle Atlantic	47	2%	2%	5%	15%	25%	41%	147%	473%	546%
South Atlantic	96	0%	3%	7%	16%	27%	63%	126%	248%	506%
East North Central	99	1%	2%	7%	15%	21%	44%	112%	167%	294%
East South Central	42	2%	3%	3%	14%	34%	260%	388%	402%	497%
West North Central	27	0%	6%	6%	12%	26%	28%	30%	67%	410%
West South Central	46	1%	6%	7%	13%	22%	39%	90%	100%	256%
Mountain	10	3%	3%	3%	11%	28%	44%	201%	231%	231%
Pacific	37	2%	3%	5%	25%	41%	68%	158%	300%	311%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990. *Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC equals charity care plus bad debt.

Exhibit 29. Distribution of Absolute Percent Change Factor 3 Calculated by UCC in IRS 990 and Worksheet S-10 data by Teaching Status*

Teaching status	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
Nonteaching	284	0%	3%	6%	16%	27%	47%	154%	283%	506%
Fewer than 100 residents	145	1%	4%	8%	13%	23%	42%	119%	167%	497%
100 or more residents	40	0%	1%	1%	6%	22%	34%	72%	158%	546%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC equals charity care plus bad debt.

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Exhibit 30. Distribution of Absolute Percent Change Factor 3 Calculated by UCC and Unreimbursed costs in IRS 990 and Worksheet S-10 data*

Hospital Type	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
All hospitals	469	0%	3%	8%	19%	38%	60%	146%	198%	425%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC and unreimbursed costs equals charity care plus bad debt plus payment shortfalls.

Exhibit 31. Distribution of Absolute Percent Change Factor 3 Calculated by UCC and Unreimbursed costs in IRS 990 and Worksheet S-10 data Geographic Location*

Geographic Location	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
Large Urban Areas	157	2%	4%	9%	20%	39%	59%	172%	224%	384%
Other Urban Areas	198	1%	4%	8%	17%	34%	62%	131%	171%	425%
Rural Hospitals	114	0%	2%	5%	20%	40%	61%	146%	203%	362%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC and unreimbursed costs equals charity care plus bad debt plus payment shortfalls.

Exhibit 32. Distribution of Absolute Percent Change Factor 3 Calculated by UCC and Unreimbursed costs in IRS 990 and Worksheet S-10 data by Bed Size*

Bed Size	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
0 to 99 Beds	126	0%	2%	4%	16%	37%	57%	146%	243%	425%
100 to 249 Beds	178	0%	6%	10%	20%	40%	66%	147%	197%	387%
250 to 499 Beds	116	1%	3%	8%	20%	35%	54%	127%	179%	384%
500 to 749 Beds	34	1%	2%	10%	13%	31%	52%	153%	215%	225%
750 or More Beds	15	5%	5%	8%	15%	51%	139%	219%	224%	224%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC and unreimbursed costs equals charity care plus bad debt plus payment shortfalls.

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Exhibit 33. Distribution of Absolute Percent Change Factor 3 Calculated by UCC and Unreimbursed costs in IRS 990 and Worksheet S-10 data by Region*

Region	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
New England	65	66	1%	3%	8%	18%	32%	58%	108%	146%
Middle Atlantic	47	48	6%	10%	11%	26%	46%	90%	197%	219%
South Atlantic	96	97	0%	2%	5%	20%	39%	58%	124%	167%
East North Central	99	97	0%	9%	12%	21%	41%	71%	147%	213%
East South Central	42	41	2%	3%	4%	12%	49%	132%	338%	362%
West North Central	27	27	2%	2%	6%	10%	41%	62%	97%	143%
West South Central	46	45	0%	2%	10%	17%	27%	39%	54%	94%
Mountain	10	12	2%	2%	6%	9%	22%	57%	171%	274%
Pacific	37	36	4%	8%	11%	17%	36%	45%	119%	181%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990. *Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC and unreimbursed costs equals charity care plus bad debt plus payment shortfalls.

Exhibit 34. Distribution of Absolute Percent Change Factor 3 Calculated by UCC and Unreimbursed costs in IRS 990 and Worksheet S-10 data by Teaching Status *

Teaching status	Number of IPPS Hospitals	Minimum	5 percent	10 percent	25 percent	Median	75 percent	90 percent	95 percent	Maximum
Nonteaching	284	278	0%	2%	8%	19%	39%	57%	127%	213%
Fewer than 100 residents	145	151	0%	4%	8%	18%	36%	64%	139%	179%
100 or more residents	40	40	3%	4%	8%	18%	41%	87%	194%	222%

Source: Dobson | DaVanzo Team analysis of 2010-2011 Hospital Cost Reports and 2010 IRS 990

* Absolute percent change was calculated as the absolute differences between the Factor 3 in the two data relative to Factor 3 in Worksheet S-10 data. UCC and unreimbursed costs equals charity care plus bad debt plus payment shortfalls.

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Conclusions

We benchmarked uncompensated care costs in Worksheet S-10 data to IRS 990 data and Factor 3s based on each data source. While we found that the Factor 3s based on the S-10 data correlated with the Factor 3s based on the IRS 990 data, there were some significant discrepancies. The Factor 3s calculated only using the charity care costs results in the smallest difference across the two data sets. For approximately 50 percent of the hospitals in the analysis, the differences between the Factor 3s calculated with each data source varied by less than 25 percent when Factor 3 was calculated based on the inclusion of bad debt. A number of extremely large differences between the Factor 3s in the two data sets resulted from the inclusion of charity care and non-Medicare unreimbursed costs in the calculation of Factor 3.

Our work has two potential implications for the future calculation of Medicare DSH add-on payments. First, the IRS 990 data could offer a benchmark to assess ongoing improvements in the reporting of S-10 data. For example, the average absolute percent change (APC) in Factor 3s based on the S-10 and IRS 990 data is 38 percent (not shown; based on charity care costs only). The analysis could be repeated with the availability of newer S-10 and IRS 990 data to assess how the average APC changes over time. Reductions in the average APC would signal improvement in the S-10 data only if the IRS 990 is accepted as the “gold standard.” With documentation of such improvements, it may be possible to transition to the S-10. Second, the findings from this study could be used to further investigate the cause of differences in uncompensated care costs across the data sources. This could result in additional recommendations to improve the accuracy and validity of the S-10 data.

Impact Assessment of Applying Adjustments to UCC Proxy

Introduction

We conducted an analysis to determine the impact on the distribution of Medicare DSH dollars of adjusting the UCC proxy by including patient days from IPPS-excluded units and beds and by adjusting the UCC proxy by a hospital's wage and case mix index.

Methods

As a benchmark, we first examined the distribution of original DSH payments (DSH payments made under DSH policy prior to implementation of Section 3133) from 2010 MedPAR data. We then modeled DSH payments under Section 3133 using the most recent cost reports, a list of hospitals expected to receive Medicare DSH payments in 2014 (provided by CMS), and the most recent FY 2014 IPPS impact file (updated in September 2013). We plotted original (benchmark) DSH shares and modeled DSH shares with and without IPPS excluded days against a hospital's wage index and case mix to assess how these factors correlate with DSH payments based on the UCC proxies.

We then examined three algorithms to adjust the proxy UCCs to account for regional and hospital differences in wages and case mix:

1. Proxy UCC adjusted by wage index
2. Proxy UCC adjusted by case-mix index (CMI)
3. Proxy UCC adjusted by wage index and case-mix index

Assessment of Applying Adjustments to UCC Proxy

A step-by-step summary of our methodology is presented below.

Step 1: Identify IPPS Hospitals to be Included

- CMS provided a list of hospitals projected to receive Medicare DSH payments in 2014
- Hospitals involved in the Rural Community Demonstration or hospitals that receive hospital-specific payments are considered "Non-DSH" hospitals
- Hospitals with no MedPAR or POS records were excluded in the analysis.
- FY 2014 wage index and case mix index variables were obtained from the most recent IPPS impact file updated in September 2013.
 - File name: FY 2014 Final Rule IPPS Impact PUF-CN1-IFC-Jan 2014, downloaded from CMS website <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/FY-2014-IPPS-Final-Rule-Home-Page-Items/FY-2014-IPPS-Final-Rule-CMS-1599-F-Data-Files.html?DLPage=1&DLSort=0&DLSortDir=ascending>
 - Wage index: Variable name: FY 2014 Wage Index-updated September 2013
 - Case mix index: Variable name: TACMIV31

Step 2: Determine the Proxy UCC Using SSI days and Medicaid Days with and without Exempt Unit Days

- Any hospital with reported SSI days and Medicaid days, with and without exempt unit days on cost report.
- Proxy UCC = SSI days + Medicaid days
- Proxy UCC including exempt unit days = SSI days including exempt unit days + Medicaid days plus exempt unit days

Step 3: Adjusting the Proxy UCC Using Wage Index and Case Mix Index

- Proxy UCC adjusted by wage index= proxy UCC * (labor share*wage index + non-labor share*cost of living adjustment)
- Proxy UCC adjusted by case mix index= proxy UCC * case mix index
- Proxy UCC adjusted by wage and case mix index= proxy UCC *case mix index * (labor share*wage index + non-labor share*cost of living adjustment)
- Proxy UCC including exempt unit days was adjusted in the same way as proxy UCC.

Step 4: Calculate Factor 3

- Factor 3 is calculated as the provider's proxy UCC with or without exempt unit days divided by the sum of the proxy UCC (with or without exempt unit days) across all DSH hospitals

Step 5: Calculate Modeled DSH Percent

- Model DSH % = [25 % x Current DSH %] + [75 % x Factor 2 x Factor 3]. Note: When summed across all hospitals, the Model DSH % is 85.3%.
- Current DSH payments obtained from 2010 MedPAR.

Assessment of Applying Adjustments to UCC Proxy

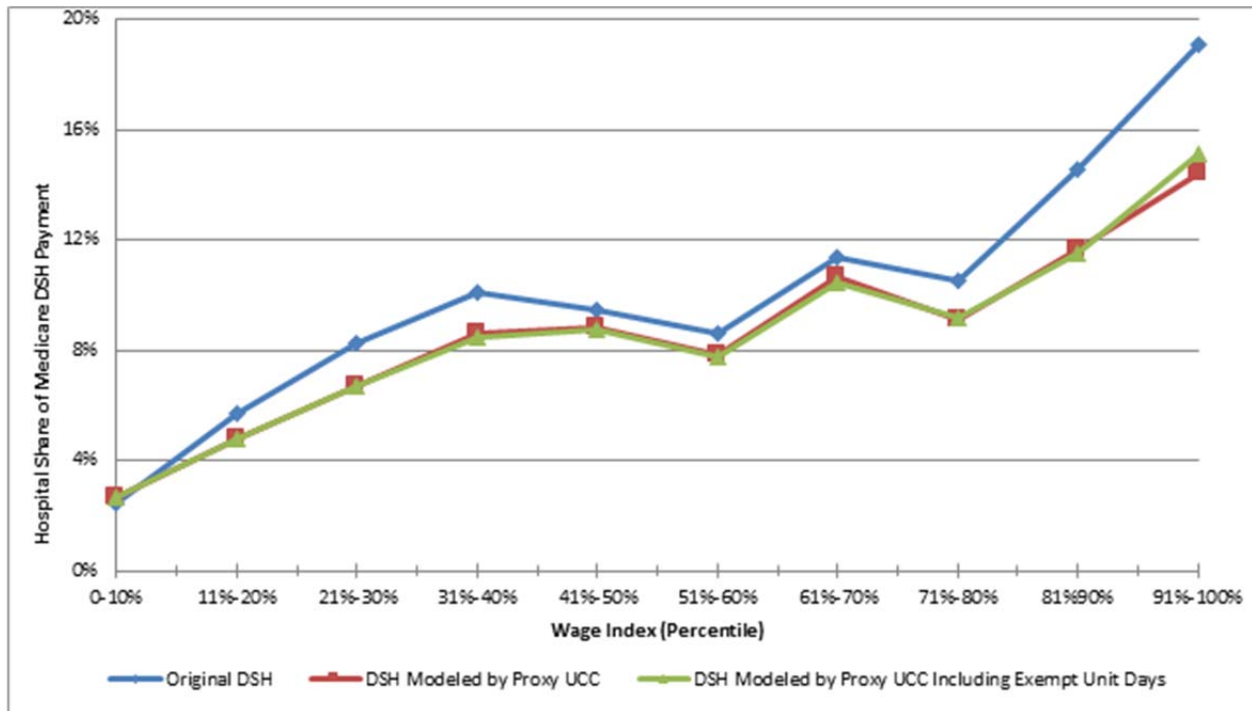
Results

Distributional Analysis

In Exhibits 35 and 36, we show the distribution of Medicare DSH payments using the proxy UCC with and without excluded patient days from excluded units and beds by wage index percentile and CMI percentile. We find that:

1. Including exempt patient days has little effect on the distribution of Medicare DSH payments.
2. High wage index hospitals received smaller shares of DSH dollars under the proxy relative to the allocation of Medicare DSH payments under the prior law.
3. High CMI hospitals received smaller shares of DSH dollars relative to the allocation of Medicare DSH payments under prior law.

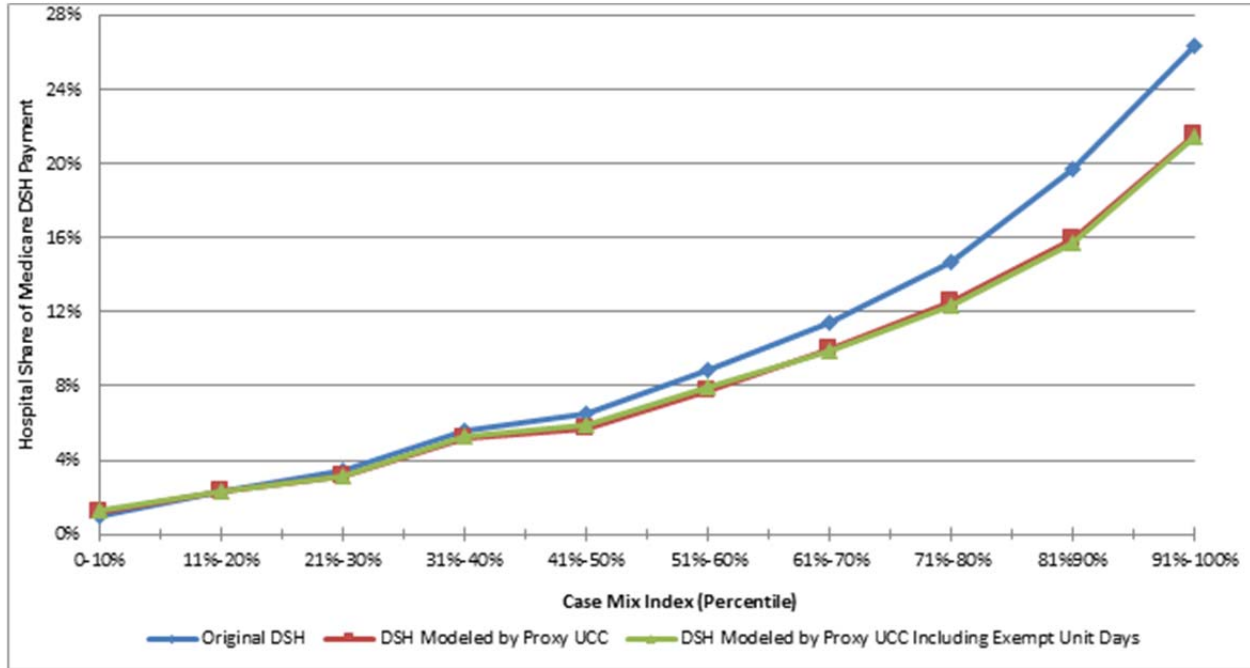
Exhibit 35. Medicare DSH Payments Under Various Scenarios by Wage Index



Source: Dobson | DaVanzo Team analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR.

Assessment of Applying Adjustments to UCC Proxy

Exhibit 36. Medicare DSH Payments under Various Scenarios by Case-Mix Index



Source: Dobson | DaVanzo Team analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR.

Impact Analysis

In Exhibits 37, 38, and 39, we show the effects of adjusting for the wage index and case-mix index in the calculation of the UCC proxy. Our key findings are:

1. Hospitals with the highest wage and case mix indexes account for a large and disproportionate share of Medicare DSH payments. (Exhibit 37)
2. As expected, hospitals in the top 10th percentile of wage index would receive increased DSH payments after adjusting wage and case mix, while hospitals in low-wage areas would experience reduced DSH payments after adjusting wage and case mix.
3. Similarly, hospitals in the top 10th percentile of case mix would receive increased DSH payments after adjusting wage and case mix, while hospitals with low case mix would experience reduced DSH payments after adjusting wage and case mix.

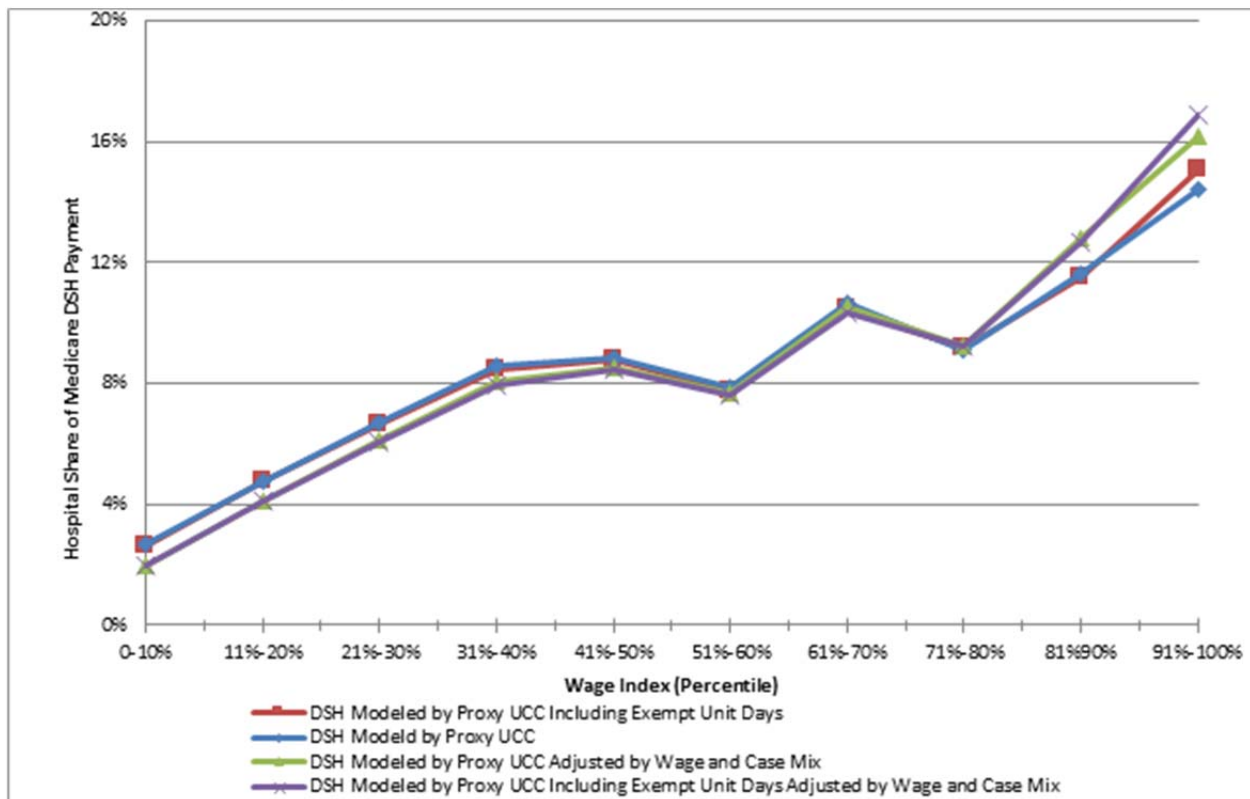
Assessment of Applying Adjustments to UCC Proxy

Exhibit 37: Impact of Adjusted Proxy UCC without Exempt Unit Days

Proportion of Total UCC Represented by Providers With:	Proxy UCC Without Adjustments	Proxy UCC Adjusted by Wage Index	Proxy UCC Adjusted by Case Mix Index	Proxy UCC Adjusted by Wage and Case Mix Index
Top 1% of Wage Index	1.0%	1.3%	-	1.3%
Top 5% of Wage Index	11.4%	13.2%	-	13.0%
Top 10% of Wage Index	15.2%	17.4%	-	17.1%
Top 1% of Case Mix Index	1.4%	-	1.9%	1.9%
Top 5% of Case Mix Index	11.8%	-	14.0%	14.1%
Top 10% of Case Mix Index	21.5%	-	24.6%	24.6%

Source: Dobson | DaVanzo Team analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR.

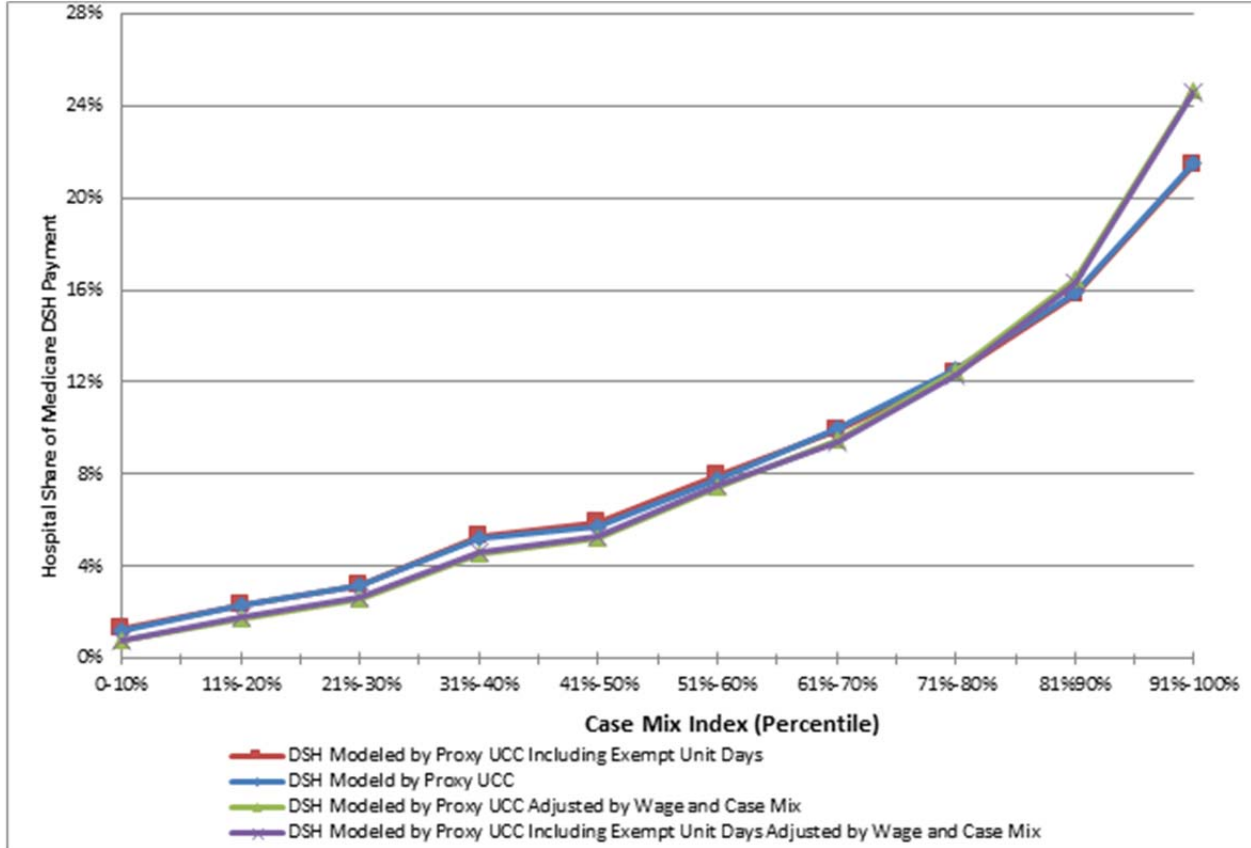
Exhibit 38: Distribution of Hospital Share of Medicare DSH Payments under Various Scenarios by Wage Index



Source: Dobson | DaVanzo Team analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR.

Assessment of Applying Adjustments to UCC Proxy

Exhibit 39: Distribution of Hospital Share of Medicare DSH Payments under Various Scenarios by Case Mix Index



Source: Dobson | DaVanzo Team analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR.

Assessment of Applying Adjustments to UCC Proxy

Analysis of DSH Modeled by Adjusted Proxy UCC by Hospital Type

Using the adjusted proxy UCC data for all hospitals expected to receive Medicare DSH payments in 2014, we conducted a distributional analysis to determine how Medicare DSH payments would shift across hospital types based on a methodology using Medicaid days and SSI days with and without including exempt unit days.

Exhibits 40 to 49 and 50 to 59 summarize the impact of adjusting for wage and case mix index separately and together in the calculation of proxy UCC to model Medicare DSH payments by hospital type. Our key findings are:

1. After accounting for wage differences, the largest redistribution of Medicare DSH payments is evidenced by hospital location, regardless of whether exempt unit days are included to determine Factor 3.
2. Hospitals in large urban areas are expected to receive a 1.4-percentage-point higher share of Medicare DSH payments than under the current rule after adjusting for wage index (Exhibits 40 to 49, column 3), while hospitals in other urban areas and rural areas would experience reductions in their DSH payments. Hospitals in other urban areas would receive a reduction of 1.0 percentage points, and hospitals in rural areas would receive a reduction of 0.4 percentage points.
3. Adjusting for case mix index results in a redistribution of Medicare DSH payments to large teaching hospitals and large hospitals in urban areas. Small hospitals in urban areas would tend to experience reduced shares of DSH payments while large hospitals in urban areas are expected to experience increased shares of DSH payments. Non-teaching hospitals are expected to experience reduced shares of DSH payments by 2.3 percentage points when adjusting the proxy UCC by wages and case mix (Exhibit 50 to 59, column 5), regardless of whether exempt unit days are included, relative to DSH payments paid under current rule. Large teaching hospitals (100 or more residents) are expected to experience an increase in their share of Medicare DSH payments by 2.7 percentage points, relative to DSH payments received under current rule.

Assessment of Applying Adjustments to UCC Proxy

Exhibit 40. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals

	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
All Hospitals	2,386	85.3%*	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Exhibit 41. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Geographic Location

By Geographic Location	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
Urban Hospitals	1,807	80.2%	0.4%	0.7%	1.0%
Large Urban Areas	972	50.3%	1.4%	0.4%	1.8%
Other Urban Areas	835	29.8%	-1.0%	0.3%	-0.8%
Rural Hospitals	578	5.1%	-0.4%	-0.7%	-1.0%
Unknown	1	0.0%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Assessment of Applying Adjustments to UCC Proxy

Exhibit 42. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Bed Size (Urban)

Bed Size (Urban)	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
0 to 99 Beds	292	1.4%	0.0%	-0.2%	-0.2%
100 to 249 Beds	793	18.7%	0.1%	-1.4%	-1.3%
250 to 499 Beds	525	32.1%	0.3%	0.2%	0.5%
500 to 749 Beds	139	16.6%	0.0%	1.3%	1.2%
750 or More Beds	58	11.4%	0.0%	0.9%	0.9%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Exhibit 43. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Bed Size (Rural)

Bed Size (Rural)	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
0 to 49 Beds	183	0.5%	-0.1%	-0.1%	-0.2%
50 to 99 Beds	222	1.4%	-0.1%	-0.3%	-0.4%
100 to 149 Beds	104	1.3%	-0.1%	-0.2%	-0.3%
150 to 199 Beds	39	0.8%	-0.1%	-0.1%	-0.1%
200 or More Beds	30	1.1%	-0.1%	0.0%	-0.1%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Assessment of Applying Adjustments to UCC Proxy

Exhibit 44. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals, Urban by Region

Urban by Region	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
New England	90	3.4%	0.4%	-0.1%	0.3%
Middle Atlantic	215	14.1%	1.0%	-0.2%	0.7%
South Atlantic	295	14.8%	-0.8%	0.3%	-0.5%
East North Central	294	10.7%	-0.3%	-0.1%	-0.4%
East South Central	129	5.0%	-0.4%	0.2%	-0.2%
West North Central	102	3.8%	-0.1%	0.2%	0.0%
West South Central	250	10.5%	-0.7%	0.1%	-0.6%
Mountain	104	3.8%	0.0%	0.2%	0.2%
Pacific	291	13.3%	1.6%	0.2%	1.8%
Puerto Rico	37	0.7%	-0.2%	-0.1%	-0.3%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Assessment of Applying Adjustments to UCC Proxy

Exhibit 45. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals, Rural by Region

Rural by Region	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
New England	11	0.1%	0.0%	0.0%	0.0%
Middle Atlantic	34	0.4%	0.0%	0.0%	-0.1%
South Atlantic	118	1.2%	-0.1%	-0.2%	-0.3%
East North Central	70	0.4%	0.0%	-0.1%	-0.1%
East South Central	153	1.5%	-0.1%	-0.2%	-0.3%
West North Central	33	0.3%	0.0%	0.0%	0.0%
West South Central	130	0.9%	-0.1%	-0.1%	-0.2%
Mountain	20	0.1%	0.0%	0.0%	0.0%
Pacific	9	0.1%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Exhibit 46. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Payment Classification

Payment Classification	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
Urban Hospitals	1,832	80.0%	0.4%	0.6%	1.0%
Large Urban Areas	984	50.2%	1.4%	0.4%	1.8%
Other Urban Areas	848	29.7%	-1.0%	0.2%	-0.8%
Rural Hospitals	553	5.3%	-0.4%	-0.6%	-1.0%
Unknown	1	0.0%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Assessment of Applying Adjustments to UCC Proxy

Exhibit 47. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Teaching Status

Teaching Status	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
Nonteaching	1548	27.3%	-0.5%	-1.9%	-2.3%
Fewer than 100 residents	609	28.3%	-0.2%	-0.2%	-0.4%
100 or more residents	228	29.7%	0.7%	2.1%	2.7%
Unknown	1	0.0%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Exhibit 48. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Type of Ownership

Type of Ownership	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
Voluntary	1428	55.4%	0.2%	0.4%	0.7%
Proprietary	495	12.7%	-0.4%	-0.6%	-0.9%
Government	463	17.1%	0.1%	0.2%	0.2%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Assessment of Applying Adjustments to UCC Proxy

Exhibit 49. Distribution of Medicaid and SSI Days and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Medicare Utilization Percent

Medicare Utilization Percent	Number of IPPS Hospitals	Percent Medicaid and SSI Days Model DSH	Percentage Point Change Medicaid and SSI Days Adjusting Wage Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Case Mix Index Model DSH**	Percentage Point Change Medicaid and SSI Days Adjusting Wage and Case Mix Index Model DSH**
0-25	285	17.8%	0.3%	0.3%	0.7%
25-50	1412	58.3%	0.0%	0.5%	0.4%
50-65	603	8.8%	-0.3%	-0.7%	-1.0%
Over 65	85	0.5%	0.0%	-0.1%	-0.1%
Unknown	1	0.0%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated by $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Exhibit 50: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals

	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
All Hospitals	2,386	85.3%*	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated as $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Assessment of Applying Adjustments to UCC Proxy

Exhibit 51: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Geographic Location

By Geographic Location	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
Urban Hospitals	1,807	80.2%	0.4%	0.7%	1.0%
Large Urban Areas	972	50.6%	1.5%	0.4%	1.8%
Other Urban Areas	835	29.5%	-1.0%	0.3%	-0.8%
Rural Hospitals	578	5.1%	-0.4%	-0.7%	-1.0%
Unknown	1	0.0%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated as $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Exhibit 52: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Bed Size (Urban)

Bed Size (Urban)	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
0 to 99 Beds	292	1.4%	0.0%	-0.2%	-0.3%
100 to 249 Beds	793	18.8%	0.2%	-1.4%	-1.3%
250 to 499 Beds	525	32.1%	0.3%	0.2%	0.5%
500 to 749 Beds	139	16.6%	0.0%	1.3%	1.2%
750 or More Beds	58	11.3%	0.0%	0.9%	0.9%

Assessment of Applying Adjustments to UCC Proxy

Exhibit 53: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Bed Size (Rural)

Bed Size (Rural)	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
0 to 49 Beds	183	0.6%	-0.1%	-0.1%	-0.2%
50 to 99 Beds	222	1.4%	-0.1%	-0.3%	-0.3%
100 to 149 Beds	104	1.3%	-0.1%	-0.2%	-0.3%
150 to 199 Beds	39	0.8%	-0.1%	-0.1%	-0.1%
200 or More Beds	30	1.1%	-0.1%	0.0%	-0.1%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated as $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Exhibit 54: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals, Urban by Region

Urban by Region	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
New England	90	3.4%	0.4%	-0.1%	0.3%
Middle Atlantic	215	14.9%	1.1%	-0.3%	0.8%
South Atlantic	295	14.7%	-0.8%	0.3%	-0.5%
East North Central	294	10.6%	-0.3%	0.0%	-0.4%
East South Central	129	5.0%	-0.4%	0.2%	-0.2%
West North Central	102	3.8%	-0.1%	0.2%	0.0%
West South Central	250	10.3%	-0.7%	0.1%	-0.6%
Mountain	104	3.8%	0.0%	0.2%	0.2%
Pacific	291	13.2%	1.5%	0.2%	1.7%
Puerto Rico	37	0.6%	-0.2%	-0.1%	-0.3%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated as $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

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Exhibit 55: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals, Rural by Region

Rural by Region	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
New England	11	0.1%	0.0%	0.0%	0.0%
Middle Atlantic	34	0.4%	0.0%	0.0%	-0.1%
South Atlantic	118	1.3%	-0.1%	-0.2%	-0.3%
East North Central	70	0.4%	0.0%	-0.1%	-0.1%
East South Central	153	1.5%	-0.2%	-0.2%	-0.3%
West North Central	33	0.3%	0.0%	0.0%	-0.1%
West South Central	130	0.9%	-0.1%	-0.1%	-0.2%
Mountain	20	0.1%	0.0%	0.0%	0.0%
Pacific	9	0.1%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated as $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Exhibit 56: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Payment Classification

Payment Classification	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
Urban Hospitals	1,832	80.0%	0.4%	0.6%	1.0%
Large Urban Areas	984	50.5%	1.5%	0.4%	1.8%
Other Urban Areas	848	29.4%	-1.0%	0.3%	-0.8%
Rural Hospitals	553	5.3%	-0.4%	-0.6%	-1.0%
Unknown	1	0.0%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated as $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

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Exhibit 57: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Teaching Status

Teaching Status	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
Nonteaching	1548	27.0%	-0.5%	-1.9%	-2.3%
Fewer than 100 residents	609	28.1%	-0.2%	-0.2%	-0.4%
100 or more residents	228	30.2%	0.8%	2.0%	2.8%
Unknown	1	0.0%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated as $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

Exhibit 58: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Type of Ownership

Type of Ownership	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
Voluntary	1428	55.2%	0.2%	0.5%	0.7%
Proprietary	495	12.5%	-0.4%	-0.6%	-0.9%
Government	463	17.5%	0.2%	0.1%	0.2%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated as $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

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Exhibit 59: Distribution of Medicaid and SSI Days (Including Exempt Days) and Impact of Modeled DSH for Estimated FY2014 DSH Hospitals by Medicare Utilization Percent

Medicare Utilization Percent	Number of IPPS Hospitals	Percent Medicaid and SSI Days (Including Exempt Days) Model DSH	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Case Mix Index**	Percentage Point Change Medicaid and SSI Days (Including Exempt Days) Model DSH Adjusting Wage and Case Mix Index**
0-25	285	18.2%	0.4%	0.3%	0.7%
25-50	1412	57.8%	-0.1%	0.5%	0.4%
50-65	603	8.8%	-0.3%	-0.7%	-1.0%
Over 65	85	0.5%	0.0%	-0.1%	-0.1%
Unknown	1	0.0%	0.0%	0.0%	0.0%

Source: Dobson | DaVanzo analysis of 2010-2012 Hospital Cost Reports and 2010 MedPAR. Hospital Categories were derived from 2010 Provider of Service File and FY 2014 Final Rule IPPS Impact File.

* Model DSH distributions calculated as $[0.25 \times \text{Current DSH}] + [\text{Factor 2} \times \text{Factor 3} \times 0.75]$. When summed across all hospitals, the Model DSH percentage is 85.3%.

** Percentage point change is determined by DSH share of Medicare payments modeled with adjustment(s) minus DSH share of Medicare payments modeled under current rule (column 2).

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Conclusions

The analyses presented in this report were motivated by concerns raised through the rulemaking process regarding the validity of S-10 data for measurement of uncompensated care and limitations associated with the UCC proxy as defined by CMS in the final FY 2014 IPPS Final Rule. The results presented in this report are intended to provide evidence to determine the extent to which these concerns are supported by data.

Through our benchmarking of uncompensated care and unreimbursed costs in Worksheet S-10 data using IRS 990 data, we found high discrepancies for the comparable variables in the two data files. The IRS 990 data do not contain information regarding Medicare bad debt, which results in less accuracy in the comparison of non-Medicare unreimbursed bad debt expense across the two data sets. Beyond the limitations of the availability of data, we found DSH payment shares are smaller when modeled using the worksheet S-10 data, especially for hospitals receiving large DSH payments.

Through our analysis of the adjustments to the UCC proxy, we confirm that the use of UCC proxy without adjustment for wage index and case mix would result in a smaller allocation of Medicare DSH payments to hospitals in the top decile of wage index and/or case mix than under the original DSH method. Accounting for IPPS excluded days has little effect on simulation results. Applying wage and case mix adjustments to the UCC proxy results in a distribution of DSH payments to these hospitals that is more similar to the distribution under the original DSH payment policy.