

Financial Challenges Faced by 340B Disproportionate Share Hospitals In Treating Low-Income Patients

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Executive Summary

340B Health commissioned Dobson DaVanzo & Associates, LLC (Dobson | DaVanzo) to evaluate the financial challenges faced by disproportionate share (DSH) hospitals participating in the 340B drug discount program due to their characteristics as safety net hospitals and their unique patient populations. We analyzed whether 340B DSH hospitals incur higher drug spending than non-340B hospitals because they treat high levels of low-income patients and operate as safety net facilities. In this report, “340B DSH hospitals” refers to hospitals enrolled in the 340B program during fiscal year (FY) 2013 as DSH and paid under the Inpatient Prospective Payment System (IPPS) as reflected in the IPPS Impact File from the Centers for Medicare & Medicaid Services (CMS).

The 340B program was established to provide “safety net” hospitals an avenue for purchasing outpatient drugs at a lower cost. Congress intended for the savings from these discounted prices to enable covered entities “to stretch scarce Federal resources as far as possible, reaching more eligible patients and providing more comprehensive services.”^{1,2} This suggests that congressional intent was for resources to be targeted toward specific hospitals that treat high levels of low-income patient populations.

We found that 340B DSH hospitals incur higher drug spending compared to non-340B hospitals due to the type of patients they treat (e.g., low-income patients) and the characteristics of the safety net facilities they operate. This conclusion is consistent with the existing research and literature. Data show that 340B DSH hospitals are more likely to treat low-income patients compared to non-340B hospitals and that 340B DSH hospitals tend to have safety net facility characteristics that make them different from non-340B hospitals. The literature suggests that these patient and facility characteristics could cause 340B DSH hospital drug spending to be higher than that of non-340B hospitals.

¹ H.R. Rep. No. 102-384(II), at 12 (1992) (Conf. Rep.).

² “Health Policy Brief: The 340B Drug Discount Program,” *Health Affairs*, November 17, 2014.

Our analysis found:

- 340B hospitals have facility characteristics that are associated with higher drug spending.
- 340B DSH hospitals serve patients who are generally more expensive to treat.
- Without accounting for the more expensive nature of 340B DSH hospital patients and facilities, Medicare Part B drug spending per drug user in 340B DSH hospitals is higher than in non-340B hospitals.
- Accounting for the patient and facility characteristics of 340B DSH hospitals in this analysis substantially reduces the spending difference between 340B DSH hospitals and non-340B hospitals, demonstrating that the initial spending difference was largely due to the safety net characteristics of 340B DSH hospitals.
- Therefore, 340B DSH hospitals incur higher drug spending than non-340B hospitals due to the low-income patients they treat and the nature of the safety net facilities they operate.

340B DSH Hospitals Have Safety Net Characteristics

Our prior work shows that 340B DSH hospitals are more likely to treat low-income and underserved patients than other providers and more likely to provide safety net services. Compared to non-340B hospitals, 340B hospitals treat significantly more Medicaid and low-income Medicare patients, provide more uncompensated care, and are more likely to provide specialized health care services that are critical for low-income patients but are often underpaid.³ 340B DSH hospitals are also more likely to serve Medicare patients who are disabled, dually eligible for Medicaid, suffering from end stage renal disease (ESRD), or are a racial or ethnic minority.⁴ In addition, they are more likely to treat low-income Medicare cancer drug recipients than non-340B providers,⁵ and low-income Medicare patients are more likely to enter treatment at a later stage of the disease.

Other research has also found similar results, showing that compared to non-340B hospitals, 340B DSH hospitals treat significantly more low-income patients, provide more

³ DaVanzo JE, Murray K, Haught R. *Update to a 2012 Analysis of 340B Disproportionate Share Hospital Services Delivered to Vulnerable Patient Populations, Eligibility Criteria for 340B DSH Hospitals Continue to Appropriately Target Safety Net Hospitals*, November 2016.

⁴ DaVanzo JE, Murray K, El-Gamil A, Dobson A. *Analysis of Patient Characteristics among Medicare Recipients of Separately Billable Part B Drugs from 340B DSH Hospitals and Non-340B Hospitals and Physician Offices*, December 2016.

⁵ DaVanzo JE, Murray K, El-Gamil A, Dobson A. *Analysis of the Proportion of 340B DSH Hospital Services Delivered to Low-Income Oncology Drug Recipients Compared to Non-340B Providers*.

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uncompensated care and charity care, have lower total facility margins, and are more likely to be major teaching hospitals.⁶

Impact of Patient and Hospital Characteristics on Spending

This prior work shows that 340B DSH hospitals share safety net characteristics that make them look different than non-340B providers, but it does not evaluate the financial impact of these characteristics on hospitals. The literature suggests that 340B DSH hospitals may incur higher spending due to the more expensive nature of the patients they tend to serve and the types of facilities they operate. For example, Medicaid patients are often sicker than the average patient population.⁷ In particular, Medicaid patients who are dually eligible for Medicare are some of the sickest patients and are considerably more expensive to treat than other patients.⁸ Dual eligible patients suffer from a higher number of clinical conditions than other patients, as indicated by the fact that they have a much higher number of CMS hierarchical condition categories (HCCs) than other beneficiaries.⁹ Research shows that patients suffering from multiple health care conditions are more expensive to treat and, therefore, result in higher spending.¹⁰ The same is true for Medicare patients who are disabled and suffering from ESRD.¹¹ Patients of certain racial and ethnic minority backgrounds also tend to be sicker than the average population and, thus, more expensive to treat.¹²

In particular, the literature suggests that many 340B DSH hospitals could incur higher spending because they are key providers of oncology services. Cancer treatments, particularly drugs used to treat cancer, are incredibly expensive and are a growing share of drug

⁶ Government Accountability Office (GAO). Medicare Part B Drugs: Action Needed to Reduce Financial Incentives to Prescribe 340B Drugs at Participating Hospitals. June 2015 (GAO-15-442).

⁷ MACPAC, Revisiting Emergency Department Use in Medicaid, July 2014, https://www.macpac.gov/wp-content/uploads/2015/01/MACFacts-EDUse_2014-07.pdf; MACPAC, Report to Congress on Medicaid and CHIP, June 2012, https://www.macpac.gov/wp-content/uploads/2015/06/2012-06-15_MACPAC_Report-1.pdf.

⁸ Kaiser Family Foundation, Medicaid's Role for Dual Eligible Beneficiaries, Aug. 2013, <https://kaiserfamilyfoundation.files.wordpress.com/2013/08/7846-04-medicoids-role-for-dual-eligible-beneficiaries.pdf>;

⁹ Corey Berger and Eric Goetsch, Medicare Advantage Hierarchical Condition Categories: Updated Study Results, Health Watch (Oct. 2012), <http://us.milliman.com/uploadedFiles/insight/health-published/pdfs/medicare-advantage-hcc.pdf>.

¹⁰ CMS, Chronic Conditions Among Medicare Beneficiaries, Chartbook: 2012 Edition, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf>.

¹¹ Michael Ulrich, Challenges For People With Disabilities Within The Health Care Safety Net, Health Affairs Blog (Nov. 18, 2014), <http://healthaffairs.org/blog/2014/11/18/challenges-for-people-with-disabilities-within-the-health-care-safety-net/>; Juliette Cubanski and Patricia Neuman, Medicare Doesn't Work As Well For Younger, Disabled Beneficiaries As It Does For Older Enrollees, Health Affairs 29:9, 1725–1733 (Sept. 2010),

<http://content.healthaffairs.org/content/29/9/1725.full.pdf>; Medicare Payment Advisory Commission (MedPAC). A Data Book: Health Care Spending and the Medicare Program. (June 2016), <http://medpac.gov/docs/default-source/data-book/june-2016-data-book-health-care-spending-and-the-medicare-program.pdf?sfvrsn=0>.

¹² Kaiser Family Foundation, Profile of Medicare Beneficiaries by Race and Ethnicity: A Chartpack, March 9, 2016, <http://kff.org/medicare/report/profile-of-medicare-beneficiaries-by-race-and-ethnicity-a-chartpack/>; Amresh Hanchate, Andrea C. Kronman, Yinong Young-Xu, Arlene S. Ash, and Ezekiel Emanuel, Racial and Ethnic Differences in End-Of-Life Costs: Why Do Minorities Cost More Than Whites?, Arch Intern Med., 169(5): 493–501, (March 9, 2009), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3621787/>.

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spending.¹³ Of note, 78 percent of the 69 National Cancer Institute (NCI)-designated cancer centers in the country are associated with 340B hospitals.¹⁴ In addition, many 340B hospitals are likely to treat cancer patients who require more expensive treatment. For example, 340B DSH hospitals are more likely to treat low-income cancer patients,¹⁵ and low-income cancer patients are more likely to present with advanced stages of the disease.¹⁶ Patients who are uninsured and part of minority communities are also more likely to be diagnosed with more advanced stages of cancer.¹⁷ Advanced stages of cancer are more expensive to treat, particularly due to the increased use of chemotherapy.¹⁸

Analysis

To determine the extent to which 340B DSH hospitals incur higher drug spending as a result of their safety net characteristics and patient populations, we examined Medicare spending on separately billable Medicare Part B drugs in 340B DSH hospitals and compared it to Medicare spending on these drugs in non-340B hospitals. We used hospital outpatient department claims data from the 2013 Medicare Standard Analytic File Limited Dataset (SAFLDS) and compared separately billable Medicare Part B drug spending for 340B DSH hospitals to non-340B hospitals in the Part B market. We focused on drug spending, rather than overall spending, given that the 340B program is a drug discount program that provides discounts on outpatient drugs to safety net hospitals. We also evaluate spending for drug users only and do not include non-drug user beneficiaries in the analysis in order to accurately measure separately billable Part B drug spending per user without attributing drug spending to patients who did not receive drugs.

Findings

Propensity Score Analysis Confirms that 340B DSH Hospitals Treat Patients that can Increase Drug Spending

We first evaluated whether 340B DSH hospitals treat the type of patients and operate the type of facilities that cause higher spending, as suggested by the literature. We compared 340B DSH hospitals to non-340B hospitals using a propensity score analysis that matched hospitals on the basis of characteristics that could affect drug spending. Hospitals that were dissimilar

¹³ Sebastian Salas-Vega and Elias Mossialos, Cancer Drugs Provide Positive Value in Nine Countries, but the United States Lags in Health Gains Per Dollar Spent, *Health Affairs* vol. 35 no. 5, 813-823 (May 2016).

¹⁴ NCI-Designated Cancer Centers, <https://www.cancer.gov/research/nci-role/cancer-centers>; OPA Covered Entity Database, <https://opanel.hrsa.gov/340B/Views/CoveredEntity/CESearch>.

¹⁵ DaVanzo JE, Murray K, El-Gamil A, Dobson A. *Analysis of the Proportion of 340B DSH Hospital Services Delivered to Low-Income Oncology Drug Recipients Compared to Non-340B Providers*.

¹⁶ Runhua Shi, Hannah Taylor, Jerry McLarty, Lihong Liu, Glenn Mills and Gary Burton, Effects of payer status on breast cancer survival: a retrospective study, *BMC Cancer* 2015 15:211 (April 2015); Gary V. Walker, Stephen R. Grant, B. Ashleigh Guadagnolo, Karen E. Hoffman, Benjamin D. Smith, Matthew Koshy, Pamela K. Allen, and Usama Mahmood, Disparities in Stage at Diagnosis, Treatment, and Survival in Nonelderly Adult Patients With Cancer According to Insurance Status, *J Clin Oncol* 32:3118-3125 (Oct. 2014).

¹⁷ American Cancer Society, *Cancer Facts & Figures*, 2017.

¹⁸ Blumen H, Fitch K, Polkus V. Comparison of Treatment Costs for Breast Cancer, by Tumor Stage and Type of Service. *American Health & Drug Benefits*. 2016;9(1):23-32.

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on the basis of these characteristics were not matched, and therefore removed from further analysis. We looked at patient characteristics that could affect spending, including beneficiary age, race, gender, presence of ESRD, dual eligibility status, current reason for Medicare entitlement, and health status as measured by the number of hierarchical condition categories (HCCs) for which patients are being treated. We also looked at hospital operating characteristics that could affect spending, including teaching status, size, region, urban/rural status, outlier percentage, transfer adjusted case mix index, low income patient load (defined as Medicaid patient days as a percent of all days and Medicare/Supplemental Security Income (SSI) patient days as a percent of Medicare days), and income from Medicaid DSH payments as a percentage of operating revenue.

The propensity score analysis removed nearly 60 percent of the 340B DSH hospitals from the analysis because they shared characteristics that could not be matched to non-340B hospitals. Thus, a large share of 340B DSH hospitals are not comparable to non-340B hospitals because they treat patients that would cause spending levels to be higher. This clearly indicates that comparing *all* 340B hospitals to non-340B hospitals is inappropriate. Roughly 40 percent of the 340B DSH hospitals remained in the analysis because they were similar enough to the remaining non-340B hospitals on the basis of characteristics that could affect spending to allow for further comparison. However, these 340B hospitals provided more uncompensated care and had lower total margins than the non-340B hospitals that remained in the analysis, which confirms their status as safety net hospitals.

Unadjusted Drug Spending Comparison Shows Higher 340B Spending, and Propensity Score Analysis Confirms Patient and Facility Characteristics Cause Higher 340B Spending

Upon verifying that a significant share of 340B DSH hospitals are likely to have higher spending than non-340B hospitals due to their patient and facility characteristics, we conducted an unadjusted comparison of drug spending between 340B DSH hospitals and non-340B hospitals. This comparison confirmed that spending was higher in 340B DSH hospitals. The average spending per drug beneficiary was \$4,620 among 340B DSH hospitals and \$ 2,778 among non-340B hospitals. This comparison did not account for the different patient and facility characteristics of 340B DSH hospitals.

To evaluate whether higher spending in 340B DSH hospitals was due to patient and facility characteristics that could affect spending, we applied the results of the propensity score analysis to the unadjusted drug spending comparison. That is, we calculated drug spending among 340B hospitals and non-340B hospitals that were matched through propensity scores. This provided a picture of drug spending in the hospitals remaining in the analysis that were more similar in terms of patient and facility characteristics. If the patient and facility characteristics that 340B DSH hospitals tend to share are the cause of higher drug spending in 340B DSH hospitals, controlling for these characteristics through propensity score analysis should reduce the spending difference.

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We would not expect the propensity score analysis to eliminate the entire spending difference between 340B hospitals and non-340B hospitals, because the propensity score analysis did not account for every patient or facility characteristic that could affect spending. We focused on observable characteristics that were available through the IPPS Impact File, Medicare Cost Reports, and Medicare claims data. There are likely other patient and facility characteristics that could affect spending that our analysis did not account for, which could remove much of the remaining spending difference. Most notably, a patient's specific diagnosis and the severity of the illness affect spending, with patients suffering from more severe illnesses causing higher spending. As reviewed above, the academic literature suggests that 340B DSH hospitals are more likely to treat patients suffering from severe illnesses, such as cancer, and the patients treated by 340B DSH hospitals are more likely to suffer from advanced forms of cancer that are more expensive to treat. This would cause 340B DSH hospital spending to be higher compared to other hospitals.

We accounted for this, in part, by measuring health status using the number of HCCs for which beneficiaries were treated. We calculated for each hospital the average number of HCCs per patient, given that patients suffering from multiple conditions are more expensive to treat. However, HCCs are based on diagnosis codes that do not necessarily reveal the complete severity of the patient's condition. This is particularly the case for cancer, because HCCs do not indicate a patient's stage of cancer, and HCCs have been criticized for underestimating the cost of care for cancer patients.¹⁹ Therefore, there are likely hospitals that would have been removed from our analysis had we been able to account for clinical severity because their patients are more expensive to treat than the HCCs reflect. Keeping these hospitals in the analysis may cause 340B hospital spending to remain higher than non-340B hospital spending, even after conducting the propensity score analysis.

As shown in Exhibit ES-1, the propensity score analysis revealed that after accounting for characteristics that could affect spending, the difference in drug spending per drug user between 340B DSH hospitals and non-340B hospitals declined by 71 percent, from a 51 percent difference to a 15 percent difference, excluding hospitals with average spending greater than 2 standard deviations from the mean.²⁰ As expected, the propensity score analysis substantially reduced the spending difference but did not completely remove it, perhaps because we did not account for all differences in patient and facility characteristics that could affect spending, including the more expensive nature of 340B DSH hospital cancer

¹⁹ MedPAC, June 2014 Report to Congress, Improving Risk Adjustment in the Medicare Program; Letter from Healthcare Quality & Payment Reform to Administrator Tavenner, (CMS) (Aug. 26, 2014) available at http://www.chqpr.org/downloads/CHQPRComments_CMS-1612-P_PhysicianPaymentPoliciesfor2015.pdf.

²⁰ This trim was implemented to account for outliers and to ensure optimum comparability of matched hospitals. We note that CMS uses a variety of trim points in its rulemaking, including trimming at 2 standard deviations in some instances. The 2 standard deviation trim has been used in the FY 2017 "Hospital Outpatient Prospective Payment and Ambulatory Surgical Center Payment Systems and Quality Reporting Programs" Final Rule (42 CFR Parts 416, 419, 482, 486, 488, and 495) and in the FY 2017 Final Rule "Advancing Care Coordination Through Episode Payment Models; Cardiac Rehabilitation Incentive Payment Model; and Changes to the Comprehensive Care for Joint Replacement Model" (42 CFR Parts 510 and 512).

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patients. Some of the remainder of the spending difference could be explained by the fact that our analysis did not account for the treatment of these more expensive cancer patients.

In addition, we note that the results of this analysis are affected by the construction of the 340B and non-340B cohorts. By design, some beneficiaries in the non-340B hospital cohort also received drugs in the physician office setting, while beneficiaries in the 340B DSH hospital cohort did not. This additional spending in the non-340B hospital cohort was not included in the calculation of average hospital spending per beneficiary. Thus, we did not account for all of the separately billable Part B drug spending for beneficiaries in the non-340B cohort, resulting in conservative estimates of average drug spending per beneficiary. This could explain some of the remainder of the spending difference.

Exhibit ES-1. Average Separately Billable Part B Drug Spending Per Hospital, Before and After Propensity Score Analysis

	340B DSH Hospitals		Non-340B Hospitals		Ratio: 340B Average Spending to Non-340B Hospital Average Spending
	Number of Hospitals	Average	Number of Hospitals	Average	
Average Spending Per Hospital (Before Propensity Score)	921	\$3,878	1,772	\$2,567	1.51
Average Spending Per Hospital among Hospitals with Similar Probabilities of Participating in the 340B Program (After Propensity Score)	384	\$3,204	673	\$2,794	1.15

Source: Dobson | DaVanzo analysis of the FY 2013 SAF LDS

We also note that comparing Medicare Part B drug spending in 340B DSH hospitals to spending in physician offices could be a more meaningful analysis than comparing to spending in non-340B hospitals. Physician offices account for a majority of Part B drug spending. In addition, physician offices tend to offer similar services to 340B hospitals, most importantly in the treatment of cancer. As such, physician offices may be offering expensive services similar to 340B hospital services that are not being provided in non-340B hospitals, which could affect spending comparisons in these settings. However, the propensity score analysis could only be conducted comparing 340B DSH hospitals to non-340B hospitals, and did not include physician offices, because the propensity analysis removed dissimilar hospitals on the basis of hospital characteristics. Physician offices, by virtue of their setting, do not have hospital-like characteristics.

Nevertheless, this analysis shows that separately billable Medicare Part B drug spending per drug user is much more similar in 340B DSH hospitals compared to non-340B hospitals, after accounting for the different patient and hospital characteristics of 340B DSH hospitals. The fact that the initial spending difference is substantially reduced after controlling for the patient and facility characteristics demonstrates that these characteristics account for higher drug spending in the unadjusted comparison. Therefore, the analysis confirms that 340B DSH hospitals incur higher drug spending compared to non-340B hospitals due to the low-income patients they treat and the nature of the safety net facilities they operate.

Study Purpose

340B Health commissioned Dobson DaVanzo & Associates, LLC (Dobson | DaVanzo) to evaluate the financial challenges faced by 340B disproportionate share (DSH) hospitals due to their status as safety net hospitals. We analyzed whether 340B DSH hospitals incur higher drug spending than non-340B hospitals because they treat more low-income patients. In this report, “340B DSH hospitals” refers to hospitals enrolled in the 340B program during fiscal year (FY) 2013 as DSH and paid under the Inpatient Prospective Payment System (IPPS) as reflected in the IPPS Impact File from the Centers for Medicare & Medicaid Services.

Existing research has shown that 340B DSH hospitals are more likely to treat low-income patients than are non-340B hospitals, and that 340B DSH hospitals tend to have safety net facility characteristics that make them different from non-340B hospitals. However, this prior work has not evaluated the financial challenges 340B DSH hospitals face due to these different characteristics and what impact they have on drug spending levels. The literature indicates that the types of patient and facility characteristics that 340B DSH hospitals tend to share could increase their spending levels. If 340B DSH hospitals are more likely to treat costly patients and operate facilities that could increase their spending, as the data and literature suggest, it would follow that that 340B DSH hospitals would incur higher costs to treat these patients and would have higher spending levels compared to non-340B hospitals.

To evaluate whether 340B DSH hospitals face higher drug spending than non-340B hospitals due to their safety net characteristics, we examined Medicare spending for separately payable Part B drugs in 340B DSH hospitals and compared it to Medicare spending on these drugs in non-340B hospitals. We used hospital outpatient department and claims data from the 2013 Medicare Standard Analytic File Limited Dataset (SAFLDS). We focused on drug spending, rather than overall spending, given that the 340B program is a drug discount program that provides discounts on outpatient drugs to safety net hospitals.

Background

340B Drug Pricing Program

The 340B Drug Pricing Program, administered by the Health Resources and Services Administration (HRSA), requires drug manufacturers to provide outpatient drugs to eligible health care organizations²¹ or covered entities at reduced prices. To participate in the 340B Program, eligible organizations or covered entities must register and be enrolled with the 340B program and must comply with all 340B program requirements.

When Congress first enacted the 340B program in 1992, it targeted DSH hospitals that provide high levels of care to Medicaid and low-income Medicare beneficiaries. Hospitals that treat high levels of low-income beneficiaries have often been referred to as “safety net” hospitals. The 340B program was established to provide safety net hospitals an avenue for purchasing outpatient drugs at a lower cost. Congress intended for the savings from these discounted prices to enable covered entities “to stretch scarce Federal resources as far as possible, reaching more eligible patients and providing more comprehensive services.”^{22, 23} This suggests that congressional intent was for resources to be targeted toward specific hospitals and toward low-income patient populations.

Drugs included in the 340B program generally comprise outpatient drugs, excluding vaccines. Specific 340B prices are determined by statutory formulas based on manufacturers' rates, but the Office of the Inspector General (OIG) estimates that the discount to entities participating in the 340B program averages approximately 34 percent

²¹ Eligible entities include federally qualified health centers, urban Indian organizations, family planning clinics, sexually transmitted disease grantees, Native Hawaiian Health Centers, state-operated Ryan White AIDS Drug Assistance Programs, other Ryan White grantees, hemophilia treatment centers, and black lung clinics. Eligible hospitals include certain DSH hospitals, critical access hospitals (CAHs), sole community hospitals (SCHs), rural referral centers (RRCs), freestanding cancer hospitals, and children’s hospitals. Additionally, providers that meet all of the requirements for the federally qualified health centers program, but do not receive federal grants—referred to as federally qualified health center look-alikes—are eligible to participate in the 340B program. This analysis includes DSH hospitals only, which accounted for 88 percent of hospitals paid under the Medicare IPPS in 2013.

²² H.R. Rep. No. 102-384(II), at 12 (1992) (Conf. Rep.).

²³ “Health Policy Brief: The 340B Drug Discount Program,” *Health Affairs*, November 17, 2014.

of the Average Sales Price (ASP) across all eligible drugs.²⁴ Because Medicare reimbursement rates are similar across all providers, the difference between drug costs and Medicare payment among 340B covered entities allows for hospitals to provide services to their low-income patients.

“Safety Net” Hospitals

The 340B program was designed for hospitals serving high volumes of low-income beneficiaries for whom the costs of care are typically not fully compensated. Hospitals that treat high volumes of low-income beneficiaries are often referred to as “safety net” hospitals. There are several definitions that states, policymakers, and researchers have used over the years to characterize these hospitals, including volume of Medicaid and low-income Medicare beneficiaries served, and amount of uncompensated care provided.

In a separate Dobson | DaVanzo report,²⁵ we used 2014 Medicare cost reports to compare DSH hospitals in the 340B program to comparable hospitals not participating in the 340B program on the following metrics: 1) relative number of low-income beneficiaries (defined as the percent Medicaid and Medicare/Supplemental Security Income patient days, because this is the low-income patient metric used for 340B DSH hospital eligibility), 2) uncompensated care, and 3) provision of public health and specialized services. This study showed that DSH hospitals in the 340B program have significantly more low-income patient days (42.5 percent vs. 26.0 percent) than hospitals that are not in the 340B program. Hospitals in the 340B program have more total uncompensated care (\$23.7 billion vs. \$16.1 billion) as well as higher levels of uncompensated care on an average, per-facility basis than do non-340B hospitals (\$25.7 million vs. \$9.9 million). The study also showed 340B DSH hospitals were more likely to provide public health and specialized services, many of which are unprofitable yet essential to their communities, than hospitals not in the 340B program.

Other research has also found similar results, showing that compared to non-340B hospitals, 340B DSH hospitals treat significantly more low-income patients, provide more uncompensated and charity care, have lower total facility margins, and are more likely to be major teaching hospitals.²⁶

A related Dobson | DaVanzo report found that beneficiaries who obtain their care at 340B DSH hospitals were significantly different from those who obtained care from non-340B hospitals or physician practices. Part B beneficiaries receiving drugs in 340B DSH

²⁴ Office of Inspector General (OIG). Part B Payments for 340B-Purchased Drugs. November 2015.

²⁵ DaVanzo JE, Murray K, Haught R. *Update to a 2012 Analysis of 340B Disproportionate Share Hospital Services Delivered to Vulnerable Patient Populations, Eligibility Criteria for 340B DSH Hospitals Continue to Appropriately Target Safety Net Hospitals*, November 2016.

²⁶ Government Accountability Office (GAO). Medicare Part B Drugs: Action Needed to Reduce Financial Incentives to Prescribe 340B Drugs at Participating Hospitals. June 2015 (GAO-15-442).

hospitals were more likely to be dually eligible for Medicaid and Medicare, disabled, Black or African-American, Hispanic, or to have ESRD.²⁷ Our prior work has also shown that Part B beneficiaries receiving oncology drugs in 340B hospitals were more likely to be low-income and dually eligible for Medicare and Medicaid.²⁸

These results demonstrate that, consistent with legislative intent, 340B DSH hospitals are different than hospitals not in the 340B program, in that they treat different beneficiaries, are more likely to provide public health and/or specialized services, and operate under different financial constraints. These studies also show that the 340B DSH hospital eligibility criteria are targeting hospitals that treat low-income patient populations.

Impact of Patient and Hospital Characteristics on Spending

The literature shows that the types of patients treated by 340B DSH hospitals can be much more expensive to treat than other patients. For example, Medicaid patients are often sicker than the average patient population, with higher rates of chronic disease and disability.²⁹ Medicaid patients are more likely than other patients to be in poor health and have one or more chronic conditions, such as asthma, diabetes, emphysema, and hypertension, which can increase their use of health care services.³⁰ In particular, Medicaid patients who are dually eligible for Medicare are some of the sickest patients in the country and are much more likely than other patients to suffer from serious conditions, including diabetes, cognitive or mental impairments and depression.³¹ In 2010, dual eligible beneficiaries made up only 14 percent of Medicaid patients but 36 percent of Medicaid spending on medical services.

The same is true for Medicare patients who are disabled. Disabled beneficiaries face a number of health care challenges and have a higher risk level for obesity, smoking, and being physically inactive.³² Compared to other Medicare beneficiaries, non-elderly disabled beneficiaries are more likely to be in poor health, have more chronic conditions, and use health care services.³³ Medicare patients suffering from ESRD are also costly to treat, with the Medicare Payment and Advisory Commission (MedPAC) finding that

²⁷ DaVanzo JE, Murray K, El-Gamil A, Dobson A. *Analysis of Patient Characteristics among Medicare Recipients of Separately Billable Part B Drugs from 340B DSH Hospitals and Non-340B Hospitals and Physician Offices*, December 2016.

²⁸ DaVanzo JE, Murray K, El-Gamil A, Dobson A. *Analysis of the Proportion of 340B DSH Hospital Services Delivered to Low-Income Oncology Drug Recipients Compared to Non-340B Providers*.

²⁹ MACPAC, Revisiting Emergency Department Use in Medicaid, July 2014, https://www.macpac.gov/wp-content/uploads/2015/01/MACFacts-EDUse_2014-07.pdf.

³⁰ MACPAC, Report to Congress on Medicaid and CHIP, June 2012, https://www.macpac.gov/wp-content/uploads/2015/06/2012-06-15_MACPAC_Report-1.pdf.

³¹ Kaiser Family Foundation, Medicaid's Role for Dual Eligible Beneficiaries, Aug. 2013, <https://kaiserfamilyfoundation.files.wordpress.com/2013/08/7846-04-medicaids-role-for-dual-eligible-beneficiaries.pdf>.

³² Michael Ulrich, Challenges For People With Disabilities Within The Health Care Safety Net, Health Affairs Blog (Nov. 18, 2014), <http://healthaffairs.org/blog/2014/11/18/challenges-for-people-with-disabilities-within-the-health-care-safety-net/>.

³³ Juliette Cubanski and Patricia Neuman, Medicare Doesn't Work As Well For Younger, Disabled Beneficiaries As It Does For Older Enrollees, Health Affairs 29:9, 1725–1733 (Sept. 2010), <http://content.healthaffairs.org/content/29/9/1725.full.pdf>.

spending on beneficiaries with ESRD is six times greater than spending on non-ESRD beneficiaries over age 65.³⁴

Patients of certain racial and ethnic minority backgrounds also tend to be sicker than the average population and, thus, more expensive to treat. For example, Black or African American and Hispanic Medicare beneficiaries report poorer health status than other beneficiaries. More Black or African American and Hispanic beneficiaries have hypertension than white beneficiaries, and Black or African American beneficiaries are more likely to visit emergency departments than are white beneficiaries.³⁵ Black or African American and Hispanic beneficiaries also tend to have higher Medicare spending particularly for end-of-life care.³⁶

Research shows that patients suffering from multiple health care conditions are also more expensive to treat and, therefore, result in higher spending. For Medicare patients with six or more chronic conditions, per capita Medicare spending in 2010 was three times as high as spending for the average patient, and dual eligible patients in particular were more likely to have multiple chronic conditions than other Medicare beneficiaries.³⁷

The literature also suggests that many 340B DSH hospitals could incur higher spending because they are key providers of oncology services. Cancer treatments, particularly drugs used to treat cancer, are incredibly expensive and are a growing share of drug spending.³⁸ Of note, 78 percent of the 69 National Cancer Institute (NCI)-designated cancer centers in the country are associated with 340B hospitals.³⁹ In addition, 340B DSH hospitals are more likely to treat low-income cancer patients,⁴⁰ and low-income cancer patients are more likely to present with advanced stages of the disease.⁴¹ Patients who are uninsured and part of minority communities are also more likely to be diagnosed with

³⁴ Medicare Payment Advisory Commission (MedPAC). A Data Book: Health Care Spending and the Medicare Program. (June 2016), <http://medpac.gov/docs/default-source/data-book/june-2016-data-book-health-care-spending-and-the-medicare-program.pdf?sfvrsn=0>.

³⁵ Kaiser Family Foundation, Profile of Medicare Beneficiaries by Race and Ethnicity: A Chartpack, March 9, 2016, <http://kff.org/medicare/report/profile-of-medicare-beneficiaries-by-race-and-ethnicity-a-chartpack/>.

³⁶ Amresh Hanchate, Andrea C. Kronman, Yinong Young-Xu, Arlene S. Ash, and Ezekiel Emanuel, Racial and Ethnic Differences in End-Of-Life Costs: Why Do Minorities Cost More Than Whites?, *Arch Intern Med.*, 169(5): 493–501, (March 9, 2009), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3621787/>.

³⁷ CMS, Chronic Conditions Among Medicare Beneficiaries, Chartbook: 2012 Edition, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/2012Chartbook.pdf>.

³⁸ Sebastian Salas-Vega and Elias Mossialos, Cancer Drugs Provide Positive Value in Nine Countries, but the United States Lags in Health Gains Per Dollar Spent, *Health Affairs* vol. 35 no. 5, 813-823 (May 2016).

³⁹ NCI-Designated Cancer Centers, <https://www.cancer.gov/research/nci-role/cancer-centers>; OPA Covered Entity Database, <https://opanel.hrsa.gov/340B/Views/CoveredEntity/CESearch>.

⁴⁰ DaVanzo JE, Murray K, El-Gamil A, Dobson A. *Analysis of the Proportion of 340B DSH Hospital Services Delivered to Low-Income Oncology Drug Recipients Compared to Non-340B Providers.*

⁴¹ Runhua Shi, Hannah Taylor, Jerry McLarty, Lihong Liu, Glenn Mills and Gary Burton, Effects of payer status on breast cancer survival: a retrospective study, *BMC Cancer* 2015 15:211 (April 2015); Gary V. Walker, Stephen R. Grant, B. Ashleigh Guadagnolo, Karen E. Hoffman, Benjamin D. Smith, Matthew Koshy, Pamela K. Allen, and Usama Mahmood, Disparities in Stage at Diagnosis, Treatment, and Survival in Nonelderly Adult Patients With Cancer According to Insurance Status, *J Clin Oncol* 32:3118-3125 (Oct. 2014).

Background

more advanced stages of cancer.⁴² Advanced stages of cancer are more expensive to treat, particularly due to the increased use of chemotherapy.⁴³

Because 340B DSH hospitals are more likely to treat these patients, compared to non-340B providers, the literature suggests that 340B DSH hospitals could incur higher drug spending than non-340B hospitals as a result.

⁴² American Cancer Society, Cancer Facts & Figures, 2017.

⁴³ Blumen H, Fitch K, Polkus V. Comparison of Treatment Costs for Breast Cancer, by Tumor Stage and Type of Service. *American Health & Drug Benefits*. 2016;9(1):23-32.

Study Methodology

Identifying 340B DSH Hospitals and Non-340B Hospitals

To compare Part B drug spending between 340B DSH hospitals and non-340B hospitals, we first identified 340B DSH hospitals and non-340B hospitals.

This study is based on FY 2013 data, as this was the most recent year of data available at the time the study was commissioned. Two criteria were applied to identify 340B DSH hospitals: 1) active participation in the 340B program as a DSH hospital during FY 2013 based on the July 2015 quarterly update of the HRSA Office of Pharmacy Affairs (OPA) Drug Pricing Program Database; and 2) included in the Medicare IPPS Impact File for 2013. Non-340B hospitals were defined as other IPPS hospitals who delivered separately billable Part B drugs in the outpatient department.

Identifying Beneficiary Cohorts Treated by 340B DSH Hospitals and Non-340B Hospitals

Once the 340B DSH hospitals and non-340B hospitals were identified, a beneficiary-level working claims database was developed using the 2013 Medicare Standard Analytic File Limited Dataset (SAF LDS) for a 5 percent sample of Medicare beneficiaries for the hospital outpatient department claims. According to CMS, this is a representative sample of the Medicare population.

Using this beneficiary-level database, we extracted all beneficiary claims for care provided at a 340B DSH hospital (study group) and non-340B hospital (comparison group). The subset of claims for separately billable Part B drugs was then extracted and reserved for the analysis.

Separately billable Part B drugs were defined in this analysis as Part B drugs with a status indicator of “G” (pass-through drugs and biologicals) or “K” (non pass-through drugs and non-implantable biologicals, including therapeutic radiopharmaceuticals, brachytherapy, and blood and blood products) in the Hospital Outpatient Prospective Payment System Final Rule Addendum B for 2013, and which also appeared in the Medicare Part B Drug

and Biological Average Sales Price Quarterly Payment files for FY 2013. Additional adjustments were made to further exclude any vaccine or immunization, as these products cannot be purchased at a discounted rate by 340B hospitals.

Our definition of the “340B DSH hospital” cohort included all beneficiaries who received their separately billable Part B drugs in a 340B DSH hospital setting only. We excluded beneficiaries who also received separately billable Part B drugs in a non-340B hospital or a physician office within 2013. We applied this exclusion criteria so that we could assign beneficiaries exclusively either to the 340B DSH hospital or the non-340B hospital cohort without overlap. Additionally, because physician offices are generally non-340B providers, this also ensured that beneficiaries in the 340B DSH hospital cohort received all of their separately billable Part B drugs from 340B DSH hospitals. Our definition of a “non-340B hospital” cohort included all beneficiaries who received at least one separately billable Part B drug in a non-340B hospital, and no separately billable Part B drugs from a 340B DSH hospital. However, overlap with physician offices was allowed for this cohort.

The study design used for this analysis is consistent with the Office of Inspector General (OIG) methodology for identifying non-340B hospitals.⁴⁴ One deviation from the OIG methodology is that in this study, the 340B cohort only includes care provided in a hospital setting and excludes 340B services provided in a non-hospital setting. (OIG’s analysis does include non-hospital 340B entities including physician office and DME services.) The non-340B cohort in our analysis includes beneficiaries who received Part B drugs in the non-340B hospital setting, and allows overlap with physician offices, but excludes from analysis all claims from non-hospital settings.

We note that our methodology does exclude a percentage of beneficiaries from the analysis, due to removal of beneficiaries receiving care at both 340B DSH hospitals and non-340B providers. We estimate that approximately 14.5 percent of the initial beneficiaries at 340B DSH hospitals and 2.4 percent of the initial beneficiaries at non-340B hospitals were removed due to these intersections. An additional 13.6 percent of beneficiaries at non-340B hospitals also received separately billable Part B drugs from physician offices, although these beneficiaries were still included in the analysis.

Calculating Average Drug Spending per Drug Beneficiary

In a prior report, Dobson | DaVanzo evaluated separately billable Medicare Part B drug spending in 340B and non-340B settings. We have since noted that the prior methodology was flawed because the spending levels in the prior report reflected separately billable Part B drug non-users as well as users. These spending levels were an

⁴⁴ Office of Inspector General (OIG). Part B Payments for 340B-Purchased Drugs. November 2015.

unrealistic measure of separately billable Part B drug spending per user because they attributed drug spending to patients who did not receive separately billable Part B drugs, thereby artificially depressing spending per patient figures. Therefore, this report evaluates separately billable Part B drug users only, not all beneficiaries, to accurately measure Part B drug use and spending patterns. This report also accounts for differences in patient and hospital characteristics between 340B and non-340B settings by using a propensity score analysis to identify hospitals that are similar based on a number of patient and facility characteristics that could affect spending.

Thus, for this analysis, separately billable Part B spending was compared across 340B DSH hospital and non-340B hospital cohorts based on average spending per Medicare drug beneficiary. Drug payment for each separately billable Part B drug was determined using revenue center payment data from the 5 percent sample of the SAF LDS.

Using the beneficiary-level linked claims database, total Medicare payments across all separately billable Part B drugs provided in a hospital outpatient department were calculated per Medicare drug user. Aggregate Medicare payments per drug user were calculated for 340B DSH hospitals and non-340B hospitals by dividing the total hospital outpatient separately billable Part B drug spending by the total number of unique beneficiaries receiving at least one separately billable Part B drug within each cohort. This reflected the average Medicare spending for the entire hospital drug regimen for beneficiaries of separately billable Part B drugs in each cohort.

We note that beneficiaries included in the 340B DSH hospital cohort received nearly all of their separately billable Part B drugs in the 340B DSH hospital setting,⁴⁵ because we excluded from this analysis any beneficiary receiving drugs in a 340B DSH hospital and in a non-340B hospital or a physician office. However, beneficiaries in the non-340B cohort were still included in the analysis if they received separately billable drugs from a physician office, though physician office drug spending was not included in the calculation of average drug spending. As noted previously, 13.6 percent of beneficiaries in the non-340B cohort also received separately billable drugs in a physician office in addition to a non-340B hospital. Thus, not all drug spending for these beneficiaries is captured, and we therefore note that estimates of average drug spending per beneficiary are conservative for this cohort.

To evaluate the impact of patient and facility characteristics that could affect drug spending, propensity score matching techniques were utilized to compare average per-beneficiary drug spending among hospitals with similar beneficiary and operating characteristics. Doing so accounts for the impact of these characteristics on hospital

⁴⁵ OIG has estimated that 91 percent of all 340B Part B drug expenditures are contained within the hospital outpatient department claims. Office of Inspector General (OIG). Part B Payments for 340B-Purchased Drugs. November 2015.

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spending levels. To start, the average separately billable Part B drug spending was calculated for each hospital. Hospitals with an average spend greater than 2 standard deviations above the mean (99 hospitals, or 3.5 percent) were trimmed.⁴⁶

Using a logit model, a propensity score was calculated for each remaining 340B DSH and non-340B hospital indicating the probability of participating in the 340B program based on the hospital operating characteristics, obtained from the 2013 IPPS Impact File and Medicare Cost Reports, as well as demographic and clinical characteristics of its beneficiary population, averaged at the hospital level. These operating characteristics as well as demographic and clinical characteristics were used to evaluate the similarity between non-340B and 340B hospitals because these characteristics can have an impact on hospital spending levels, thereby affecting the results of the analysis. Hospital operating characteristics included teaching status; size (measured by number of beds); region; urban/rural status; outlier percentage; transfer adjusted case mix index; low income patient load (measured as the percent Medicaid days to total inpatient days and percent Medicare Supplemental Security Income days to total Medicaid days); and income from Medicaid DSH payments as a percentage of operating revenue. Demographic and clinical characteristics, which were obtained from the 5 percent sample of the SAF LDS, included: beneficiary age; race; gender; presence of end stage renal disease (ESRD); dual eligibility status; current reason for Medicare entitlement; and hierarchical condition categories (HCCs). With regard to HCCs, we calculated for each hospital the average number of HCCs per patient to evaluate the health status of patients treated in each hospital.

Hospitals with overlapping propensities were selected for further analysis. These resulting propensity score-matched hospitals were similar in terms of patient demographic and hospital operating characteristics. The average spending on separately billable Part B drugs was computed for these hospital beneficiaries and compared between 340B DSH hospital beneficiaries and non-340B hospital beneficiaries.

⁴⁶This trim point was selected to account for outliers and to ensure optimum comparability of matched hospitals in the propensity score analysis. We note that CMS uses a variety of trim points in its rulemaking, including trimming at 2 standard deviations in some instances. The 2 standard deviation trim has been used in the FY 2017 “Hospital Outpatient Prospective Payment and Ambulatory Surgical Center Payment Systems and Quality Reporting Programs” Final Rule (42 CFR Parts 416, 419, 482, 486, 488, and 495) and in the FY 2017 Final Rule “Advancing Care Coordination Through Episode Payment Models; Cardiac Rehabilitation Incentive Payment Model; and Changes to the Comprehensive Care for Joint Replacement Model” (42 CFR Parts 510 and 512).

Study Results

Propensity Score Analysis Confirms that 340B DSH Hospitals Treat Patients that can Increase Drug Spending

We first conducted a propensity score analysis to confirm whether 340B DSH hospitals are more likely to have patient and facility characteristics that would increase their spending levels, as suggested by the literature. As discussed in the methodology, the propensity score analysis compared 340B hospitals to non-340B hospitals on the basis of patient and facility characteristics that could affect spending. Hospitals that were dissimilar on the basis of these characteristics were not matched, and were therefore removed from further analysis. Thus, hospitals that were removed were ones with characteristics that could cause higher spending. Hospitals that remained in the analysis were hospitals that did not share those characteristics. We found that a large share of the 340B DSH hospitals were dissimilar to the rest of the hospitals on the basis of these characteristics. That is, many hospitals that participate in the 340B program are different than other hospitals in ways that can cause their spending to be higher.

After trimming hospitals at 2 standard deviations of average drug spending, 58.3 percent of 340B hospitals could not be matched and were removed from further analysis. This shows that a significant number of 340B DSH hospitals share patient and facility characteristics that cause their spending levels to be higher.

Roughly 40 percent of the 340B DSH hospitals remained in the analysis because they were similar enough to the remaining non-340B hospitals on the basis of characteristics that could affect spending to allow for further comparison. Although these 340B hospitals did not share the characteristics that could cause higher spending, they were nevertheless different than the non-340B hospitals on several other metrics that confirm their safety net status. The 340B hospitals remaining in the analysis had an average total margin that was 22.8 percent lower than that of non-340B hospitals (6.1 percent versus 7.9 percent). The average total uncompensated care for these 340B hospitals was 13.9 percent higher than for non-340B hospitals (\$16.5 million versus \$14.4 million).

Unadjusted Drug Spending Comparison Shows Higher 340B Spending, and Propensity Score Analysis Confirms Patient and Facility Characteristics Cause Higher 340B Spending

Upon verifying that a significant share of 340B DSH hospitals are likely to have higher spending than non-340B hospitals due to their patient and facility characteristics, we then conducted an unadjusted comparison of drug spending between 340B DSH hospitals and non-340B hospitals to confirm whether spending is higher in 340B DSH hospitals, as would be expected. The average spending per drug beneficiary was \$4,620 among 340B DSH hospitals and \$2,778 among non-340B hospitals.

The unadjusted comparison demonstrates that drug spending levels are higher in 340B DSH hospitals compared to non-340B hospitals. To further evaluate whether the patient and facility characteristics of 340B DSH hospitals caused their drug spending levels to be higher, we returned to the propensity score analysis. Applying the results of the propensity score analysis to the unadjusted comparison of drug spending accounts for the different patient and facility characteristics of 340B DSH hospitals and produces a drug spending comparison that is not influenced by those characteristics. That is, it allows us to calculate drug spending among 340B hospitals and non-340B hospitals that were matched through propensity score and thus more similar in terms of patient and facility characteristics. If the patient and facility characteristics that 340B DSH hospitals tend to share are the cause of higher drug spending in 340B DSH hospitals, controlling for these characteristics through the propensity score analysis should reduce the spending difference.

We would not expect the propensity score analysis to eliminate the entire spending difference between 340B hospitals and non-340B hospitals, because the propensity score analysis did not account for every patient or facility characteristic that could affect spending. We focused on observable characteristics that were available through the IPPS Impact File, Medicare Cost Reports, and Medicare claims data. There are likely other patient and facility characteristics that could affect spending that our analysis did not account for, which could remove much of the remaining spending difference. Most notably, a patient's specific diagnosis and the severity of the illness affect spending, with patients suffering from more severe illnesses causing higher spending. As reviewed above, the academic literature suggests that 340B DSH hospitals are more likely to treat patients suffering from severe illnesses, such as cancer, and the patients treated by 340B DSH hospitals are more likely to suffer from advanced forms of cancer that are more expensive to treat. This would cause 340B DSH hospital spending to be higher compared to other hospitals.

We accounted for this, in part, measuring health status using the number of HCCs for which beneficiaries were treated. We calculated for each hospital the average number of HCCs per patient, given that patients suffering from multiple conditions are more expensive to treat. However, HCCs are based on diagnosis codes that do not necessarily

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reveal the complete severity of the patient’s condition. This is particularly the case for cancer, because HCCs do not indicate a patient’s stage of cancer, and HCCs have been criticized for underestimating the cost of care for cancer patients.⁴⁷ Therefore, there are likely hospitals that would have been removed from our analysis had we been able to account for clinical severity because their patients are more expensive to treat than the HCCs reflect. Keeping these hospitals in the analysis may cause 340B hospital spending to remain higher than non-340B hospital spending, even after conducting the propensity score analysis.

As shown in Exhibit 1, the propensity score analysis revealed that after accounting for characteristics that could affect spending, the difference in drug spending per drug user between 340B DSH hospitals and non-340B hospitals declined by 71 percent, from a 51 percent difference to a 15 percent difference, excluding hospitals with average spending greater than 2 standard deviations from the mean.⁴⁸

Exhibit 1. Average Separately Billable Part B Drug Spending Per Hospital, Before and After Propensity Score Analysis

	340B DSH Hospitals		Non-340B Hospitals		Ratio: 340B Average Spending to Non-340B Hospital Average Spending
	Number of Hospitals	Average	Number of Hospitals	Average	
Average Spending Per Hospital (Before Propensity Score)	921	\$3,878	1,772	\$2,567	1.51
Average Spending Per Hospital among Hospitals with Similar Probabilities of Participating in the 340B Program (After Propensity Score)	384	\$3,204	673	\$2,794	1.15

Source: Dobson | DaVanzo analysis of the FY 2013 SAF LDS

As expected, the propensity score analysis substantially reduced the spending difference but did not completely remove it, given that we did not account for all differences in patient and facility characteristics that could affect spending, namely the more expensive nature of 340B DSH hospital cancer patients. Some of the remainder of the spending difference between 340B and non-340B hospitals could be explained by the fact that our analysis did not remove hospitals that should have been removed because their patients are more expensive to treat.

⁴⁷ MedPAC, June 2014 Report to Congress, Improving Risk Adjustment in the Medicare Program; Letter from Healthcare Quality & Payment Reform to Administrator Tavenner, (CMS) (Aug. 26, 2014) available at http://www.chqpr.org/downloads/CHQPRComments_CMS-1612-P_PhysicianPaymentPoliciesfor2015.pdf.

⁴⁸ This trim was implemented to account for outliers and to ensure optimum comparability of matched hospitals. We note that CMS uses a variety of trim points in its rulemaking, including trimming at 2 standard deviations in some instances. The 2-standard deviation trim has been used in the FY 2017 “Hospital Outpatient Prospective Payment and Ambulatory Surgical Center Payment Systems and Quality Reporting Programs” Final Rule (42 CFR Parts 416, 419, 482, 486, 488, and 495) and in the FY 2017 Final Rule “Advancing Care Coordination Through Episode Payment Models; Cardiac Rehabilitation Incentive Payment Model; and Changes to the Comprehensive Care for Joint Replacement Model” (42 CFR Parts 510 and 512).

In addition, we note that the results of this analysis are affected by the construction of the 340B and non-340B cohorts. By design, some beneficiaries in the non-340B hospital cohort also received drugs in the physician office setting, while beneficiaries in the 340B DSH hospital cohort did not. This additional spending in the non-340B hospital cohort was not included in the calculation of average hospital spending per beneficiary. Thus, not all of the separately billable Part B drug spending is accounted for in the non-340B cohort, resulting in conservative estimates of average drug spending per beneficiary. This could explain some of the remainder of the spending difference.

We also note that comparing Medicare Part B drug spending in 340B DSH hospitals to spending in physician offices could be a more meaningful analysis than comparing to spending in non-340B hospitals. Physician offices account for a majority of Part B drug spending. In addition, physician offices tend to offer similar services to 340B hospitals, most importantly in the treatment of cancer. As such, physician offices may be offering expensive services similar to 340B hospital services that are not being provided in non-340B hospitals, which could affect spending comparisons in these settings. However, the propensity score analysis could only be conducted comparing 340B DSH hospitals to non-340B hospitals, and did not include physician offices, because the propensity analysis removed dissimilar hospitals on the basis of hospital characteristics. Physician offices, by virtue of their setting, do not have hospital-like characteristics.

Nevertheless, this analysis shows that separately billable Medicare Part B drug spending per drug user is much more similar in 340B DSH hospitals compared to non-340B hospitals, after accounting for the different patient and hospital characteristics of 340B DSH hospitals. The fact that the initial spending difference is substantially reduced after controlling for the patient and facility characteristics demonstrates that these characteristics account for higher drug spending in the unadjusted comparison. Therefore, the analysis confirms that 340B DSH hospitals incur higher drug spending compared to non-340B hospitals due to the low-income patients they treat and the nature of the safety net facilities they operate.

Discussion

The purpose of this study was to evaluate the financial challenges faced by 340B DSH hospitals stemming from their safety net characteristics. To assess these challenges, we analyzed whether 340B DSH hospitals incur higher drug spending than non-340B hospitals due to the patient and facility characteristics 340B DSH hospitals tend to share. We found that 340B DSH hospitals incur higher drug spending compared to non-340B hospitals due to the type of patients (e.g., low-income patients) 340B DSH hospitals tend to treat and the nature of the safety net facilities that 340B DSH hospitals operate.

Matching 340B DSH hospitals to non-340B hospitals using a propensity score analysis revealed that a significant share of 340B DSH hospitals have patient and facility characteristics that would cause their spending levels to be higher. Therefore, as expected, an unadjusted comparison of Medicare Part B drug spending between 340B DSH hospitals and non-340B hospitals confirmed that spending was higher in 340B DSH hospitals.

Applying the results of the propensity score analysis to the drug spending comparison allowed us to examine just those hospitals with similar patient and facility characteristics. This further revealed that drug spending levels in 340B DSH hospitals and non-340B hospitals are much more similar, after accounting for many patient and facility characteristics that can affect spending. The fact that the spending difference is substantially reduced after controlling for the patient and facility characteristics demonstrates that these characteristics account for the higher drug spending revealed by the unadjusted comparison. Therefore, the analysis confirms that 340B DSH hospitals incur higher drug spending compared to non-340B hospitals due to the low-income patients they treat and the nature of the safety net facilities they operate. The higher spending that 340B DSH hospitals incur due to these characteristics highlights the financial challenges that 340B DSH hospitals face because of the low-income patients they treat and safety net services they provide.

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