Analysis of 340B Disproportionate Share Hospital Services to Low-Income Patients

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340B Health

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Executive Summary

The current analysis updates work, previously commissioned by 340B Health,[1] which offered evidence that 340B hospitals are providing higher levels of care to low-income patients than non-340B hospitals. L&M's updated analysis used fiscal year (FY) 2015 HCRIS Medicare Hospital Cost Reports to identify indigent care measures (unreimbursed and uncompensated care and low-income patient loads), the Health Resources & Services Administration (HRSA) 340B OPAIS Covered Entity Daily Report to identify 340B qualified entities, and FY 2015 American Hospital Association (AHA) survey data to examine provision of specialized and community health services. These measures collectively offer a foundational picture of how 340B program participants compare to their non-340B counterparts. These descriptive analyses produce results similar to the findings in prior work and suggest that, in FY 2015, 340B DSH entities treat more low-income patients, provide more uncompensated and unreimbursed care[2], and are more likely to provide specialized health care services that are critical to low-income patients but are often underpaid[3], compared to similarly sized acute care hospitals that are not 340B entities. These results continue to support the conclusion that the population of 340B DSHs provides high levels of care to low-income patients and communities.

Specific results include:

- 340B DSH hospitals treat significantly more low-income patients than non-340B hospitals, with the average low-income patient load for 340B DSHs being 41.8%, compared to 27.2% for non-340B hospitals.
- 340B DSH hospitals represented 38% of hospitals in our study, but were responsible for 60% of total unreimbursed and uncompensated care.
- On average, 340B DSH facilities provided 27.4% more unreimbursed and uncompensated care than the comparison ACHs.
- When compared to non-340B ACHs of similar size, 340B DSHs provided more unreimbursed and uncompensated care, including charity care, bad debt, and public payer shortfall amounts.
- AHA survey data suggest that 340B DSH hospitals are more likely than non-340B ACHs to provide specialized and community-based health services that are critical for

[1] Dobson Davanzo & Associates, 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 ("Services Delivered to Vulnerable Patients"), Nov. 15, 2016, http://www.340bhealth.org/files/Update_Report_FINAL_11.15.16.pdf.

[2] Uncompensated and unreimbursed costs are defined as the sum of charity care, bad debt, and public payer shortfall amounts.

[3] Dobson Davanzo & Associates, 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 ("Services Delivered to Vulnerable Patients"), Nov. 15, 2016, http://www.340bhealth.org/files/Update_Report_FINAL_11.15.16.pdf.

low-income patients and are often underpaid, such as HIV/AIDS treatment, trauma services, and outpatient alcohol/drug abuse services.

The following sections summarize the approach and present the findings in more depth. Additional details around the methods and assumptions used in the analyses are included in the Technical Appendix.

Introduction

The 340B program allows qualified hospitals and other health care providers who serve a disproportionate share of low-income and vulnerable patients to purchase outpatient drugs at discounted prices from drug manufacturers. The intent of the program, as defined by Congress, is for safety net providers "[to] stretch scarce federal resources" to support care for the low-income and rural patients they treat. For insight into whether 340B safety net hospitals are reaching the intended patient populations, the L&M study team conducted a descriptive analysis comparing important characteristics of indigent care services between 340B disproportionate share hospitals (DSH) and non-340B acute care hospitals (ACH). Such an analysis is a critical step in documenting whether 340B health care providers are serving the populations and communities intended by the program.

Data Sources and Study Populations

The research team used the publicly available 2016 IPPS Impact File to identify the universe of hospitals eligible for the study, and the HRSA 340B OPAIS Covered Entity Daily Report to identify which hospitals are 340B DSH.[4,5] The 2016 impact file, issued July 2015 (and correction notice issued in October 2015), contains provider-specific data elements used to calculate CMS final payment rates and impacts of policy changes to these rates. To supplement the data in this file, the HRSA Daily Report provided information for all active and inactive entities in the 340B application, allowing filtering on entity active participation dates with the program.

The 340B DSH hospitals identified through these sources as active between October 1, 2014, and December 31, 2015, were eligible for inclusion in the 340B DSH cohort.[6] Similarly, non-340B ACHs active during this time period were identified as eligible for the comparison group of hospitals. Following the initial cohort selection of 999 340B DSHs and 1,806 non-340B ACHs, we retained facilities whose CMS Certification Numbers (CCNs) could be successfully matched to FY 2015 cost reports, which contain patient care costs and reimbursements data necessary to perform the analysis.

The team applied additional adjustments and exclusions to finalize the two study cohorts. In instances when multiple cost report records were observed for a given CCN, the team retained the report covering the longest time span between the fiscal year start and end date to ensure the

[4] https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/FY2016-IPPS-Final-Rule-Home-Page-Items/FY2016-IPPS-Fnal-Rule-Data-Files.html

[5] Health Resources & Services Administration (HRSA) Office of Pharmacy Affairs, 340B OPAIS Covered Entity Daily Report, downloaded version 18OCT2017

[6] On the 340B database, facilities that are part of a covered entity have the same 340B ID number as the main (or "parent") entity; it is common for covered entities to share the Medicare ID (or CCN) of the parent. For purposes of this study, unique CCNs were used to define the parent entity.

most accurate annual hospital costs were used for analysis.[7] Further, hospitals with unreported total patient care costs and those with unreported total unreimbursed and uncompensated costs were eliminated. From the remaining facilities, the team assessed outliers based on total patient care costs and total number of beds, and excluded any observations exceeding the outlier threshold. [8] A final restriction excluded cost reports where total cost was less than the sum of its parts.[9] The resulting overall population for this study consisted of 2,505 hospitals, comprising 955 340B DSH facilities and 1,550 non-340B ACH facilities.

As this analysis combines hospital financial and care delivery characteristics between the 340B DSH and non-340B ACH facility cohorts, it is important to take into account overall facility size, which can notably drive variation in these characteristics. We normalize measures of unreimbursed and uncompensated care using patient care costs (i.e., unreimbursed and uncompensated care relative to total care costs). Using total patient care costs as a proxy for size, we then array facilities in the two study cohorts along quartiles of total patient care costs to identify differences in their size distributions. That is, all 2,505 hospitals were ranked in order of total care cost, and then divided into four groups, with Quartile 1 comprised of hospitals with the highest total care costs, and Quartile 4 comprised of those with the lowest total care costs.[10] Based on this measure, 340B DSHs are larger, on average, than non-340B ACHs (Table 1), with 39% (N=373) of 340B facilities in the highest quartile of total patient care costs. However, only 16% (N=253) of the non-340B facilities fall into the highest cost quartile, and non-340B ACHs comprise a greater share of the lowest cost quartile than do 340B DSHs.

Table 1. Number of 340B and Non-340B Hospitals by Size, FY2015

Number of Hospitals by Quartile & Cohort			
Quartile	**340B DSH**	**Non-340B**	**Total**
1 (largest hospitals by patient cost)	373 (39%)	253 (16%)	626
2	217 (23%)	409 (26%)	626
3	194 (20%)	432 (28%)	626
4 (smallest hospitals by patient cost)	171 (18%)	456 (29%)	627
Total	**955**	**1,550**	**2,505**

Source: CMS HCRIS Hospital Cost Report Form 2552-10 FY2015

Table 2 illustrates the average patient care cost per facility within each quartile, by cohort, and in total, which represents an approximation of relative hospital size. Hospital assignment to the

[7] A total of 35 CCNs in the study population were observed having more than one cost report during FY2015. From the associated cost reports, no instances of overlapping periods of reporting were observed, suggesting that reports covering the longest period of time will most accurately represent annual hospital costs.
[8] We excluded records with the natural log of total patient care costs per bed above or below 2 standard deviations of the mean log of total patient care costs per bed (see Technical Appendix for details).
[9] Hospitals with total costs reported on Worksheet S-10 (lines 7, 11, 15, 21, and 29) greater than total hospital costs Worksheet C, Part I, line 202, col 3) were excluded.
[10] Our methodology changed in one dimension from previous studies. Instead of calculating size quartiles for 340B and non-340B cohorts separately, this study determined hospital size quartiles across all hospitals based on total care costs to increase inter-quartile comparability.

quartiles allows comparison of presumably like-sized facilities, as 340B DSHs with average costs of $43 million are compared to non-340B ACHs with $37.9 million average costs, and 340B DSHs with $104 million average costs are compared to non-340B ACHs with $104 million average costs, and so forth.

Table 2. Average (Per Facility) Patient Care Costs of 340B and Non-340B Hospitals by Size, FY2015

Average Patient Care Costs		
Quartile	**340B DSH**	**Non-340B**
1 (largest hospitals by patient cost)	$677,568,837	$499,711,760
2	$216,357,399	$209,033,821
3	$104,466,413	$104,215,814
4 (smallest hospitals by patient cost)	$43,355,904	$37,975,220
All Hospitals	**$342,788,561**	**$176,941,832**

Source: CMS HCRIS Hospital Cost Report Form 2552-10 FY2015

In addition to total patient care costs, other key data elements extracted from the cost reports included charity care costs, bad debt, public payer shortfall amounts, unreimbursed and uncompensated care costs (the sum of charity, bad debt, and public payer shortfalls), and low-income patient load measures (derived from rates of Medicare SSI and Medicaid days).

As a supplement to the financial data obtained from cost reports, the analysis included FY 2015 AHA Survey Data. These data, based on hospital reporting by fiscal year, are collected and verified by the AHA to provide information characterizing facilities and the range of services they provide. This comprehensive directory of hospitals, and accompanying descriptive information on specialty services, was used in this study to compare the array of services available to patients at 340B DSHs and non-340B ACHs. Additional detail on the AHA survey data is available in Appendix 1: Summary of Public Health and Specialized Services Provided by 340B DSH and Non-340B ACH Hospitals.

Descriptive Results Comparing 340B DSH and Non-340B ACH Cohorts

The 340B drug pricing program is intended to support care to low-income and rural patients provided by safety-net hospitals, characterized as those that deliver a significant amount of health care and related services to low-income, medically uninsured, under-insured, and other vulnerable populations. A key factor underlying 340B qualifying status for a DSH is a hospital's DSH percentage, a calculation intended to measure the proportion of indigent patient care provided relative to overall care provision, which includes the number of Medicare SSI and Medicaid bed days.[11] While every 340B participating DSH must meet the qualifying 11.75% DSH threshold, additional metrics, such as those included in this analysis, are critical to evaluate a hospital's level of safety net care and whether the current population of 340B hospitals treat

[11] DSH Patient Percent = (Medicare SSI Days / Total Medicare Days) + (Medicaid, Non-Medicare Days / Total Patient Days)

high levels of low-income patients. Prior work commissioned by 340B Health found support in the academic literature for three metrics commonly used to determine a hospital's safety net status, including a hospital's provision of care to low-income patients, uncompensated and unreimbursed cost levels, and provision of specialized services that are critical to low-income patients but are often underpaid.[12] Below are results from descriptive comparisons of these three measures of safety net status, updated for FY2015.

Low Income Patient Load

The amount of care provided to Medicare SSI and Medicaid patients by a facility is reflected in its low-income patient load, and can be utilized as a measure of the low-income and otherwise vulnerable patient population served. As such, greater low-income patient load in 340B DSH hospitals compared to non-340B hospitals suggests that 340B DSH entities provide an important community safety net. Table 3 shows that, across all quartiles and in total, 340B DSH hospitals care for a larger proportion of low income patients. Overall, 340B DSHs average a low-income patient load of 41.8% versus 27.2% for non-340B ACHs.

Table 3. Average Low-Income Patient Load for 340B and non-340B Hospitals by Size, FY2015

Percentage of Low-Income Patient Load		
Quartile	**340B DSH**	**Non-340B**
1 (largest hospitals by patient cost)	44.4%	25.4%
2	41.5%	26.0%
3	41.8%	27.8%
4 (smallest hospitals by patient cost)	39.5%	29.7%
Total	**41.8%**	**27.2%**

Source: CMS HCRIS Hospital Cost Report Form 2552-10 FY2015

Unreimbursed and Uncompensated Care

Discussions of 340B DSH provision of care to low-income patients that only consider charity care miss the provision of care by 340B DSHs to a wide range of low-income and otherwise vulnerable populations, frequently resulting in financial loss to the hospital. Medicare cost reports include both charity care and bad debt, together, as "uncompensated care." However, prior work has shown that the academic literature points to a more complete measure of unreimbursed and uncompensated care that also considers public payer shortfall incurred by these hospitals.[13] The inclusion of the public payer shortfall is particularly important in light of steep increases in post-ACA Medicaid enrollment; as Medicaid enrollment increases, so presumably does public payer shortfall overall.

[12] Dobson Davanzo & Associates, 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

[13] Ibid

Table 4, Table 5, and Table 6, below, give the perspective of unreimbursed and uncompensated care in total and within quartile, with charity care, bad debt and public payer shortfall combined.

To illustrate the magnitude of the difference in cost, Table 4 presents total costs for unreimbursed and uncompensated services for both hospital cohorts. Overall, 340B DSHs provided in excess of $26 billion in unreimbursed and uncompensated services, compared to $17 billion provided in total by all non-340B hospitals studied, for a difference of $8.9 billion, despite fewer 340B hospitals. This translates to an average additional cost for unreimbursed and uncompensated care of $9.3 million for each 340B DSH. In addition, 340B hospitals represent 38% of all hospitals in this study, yet they account for 60% of total unreimbursed and uncompensated care costs.

Table 4. Total Unreimbursed and Uncompensated Care for 340B and Non-340B Hospitals, FY2015

	340B DSH	Non-340B
Total Unreimbursed & Uncompensated Care Cost	$26,052,787,717	$17,135,086,440

Source: CMS HCRIS Hospital Cost Report Form 2552-10 FY2015
Notes: Unreimbursed and Uncompensated Care Costs = Bad Debt + Charity Care + Public Payer Shortfall

Table 5 gives the breakdown of average, per facility, costs for unreimbursed and uncompensated care, within quartile, for 340B DSHs and non-340B ACHs. Whether relative hospital size is taken into consideration (by-quartile comparisons) or even if it is not (in total), actual costs incurred on a facility level for unreimbursed and uncompensated care are higher for 340B DSHs. Across all study hospitals, 340B DSHs average $16 million more in unreimbursed and uncompensated care costs than non-340B ACHs.

Table 5. Average Unreimbursed and Uncompensated Care Costs for 340B and Non-340B Hospitals by Size, FY2015

Unreimbursed and Uncompensated Care Costs (Average, By Facility)			
Quartile	**340B DSH**	**Non-340B**	**Difference, 340B DSH vs Non-340B ACH**
1 (largest hospitals by patient cost)	$52,527,304	$27,741,952	$24,785,352
2	$17,994,296	$14,063,247	$3,931,049
3	$9,508,766	$7,115,072	$2,393,694
4 (smallest hospitals by patient cost)	$4,155,791	$2,830,688	$1,325,103
Total	**$27,280,406**	**$11,054,894**	**$16,225,512**

Source: CMS HCRIS Hospital Cost Report Form 2552-10 FY2015
Notes: Costs reported are calculated as average per facility within cohort and quartile
Unreimbursed and Uncompensated Care Costs = Bad Debt + Charity Care + Public Payer Shortfall

Table 6 displays the average unreimbursed and uncompensated costs as a percentage of total care costs for 340B DSHs and non-340B ACHs, showing that rates are higher in all quartiles for

340B hospitals. In total, 340B DSH unreimbursed and uncompensated costs average 7.96% of total patient care costs, while the rate for non-340B ACHs is 6.25%. As such, unreimbursed and uncompensated costs are 27.4% higher, on average, for 340B facilities.[14]

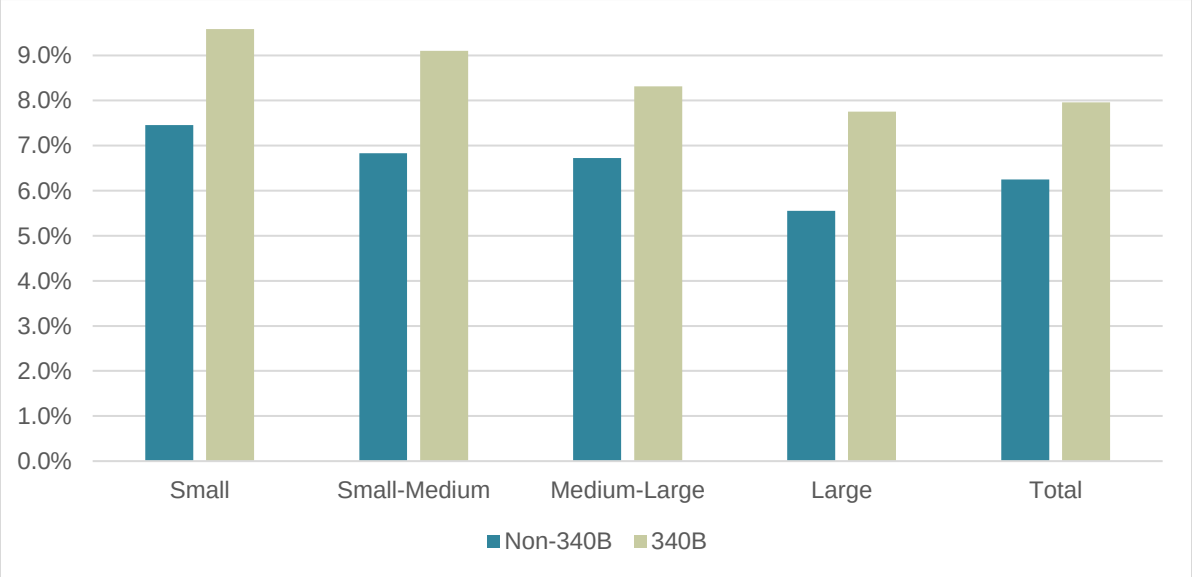
Table 6. Average Percentage of Total Unreimbursed and Uncompensated Care to Total Patient Care Costs for 340B and Non-340B Hospitals by Size, FY2015

Unreimbursed and Uncompensated Care Costs, As Percentage of Total Cost (Average, By Facility)			
Quartile	**340B DSH**	**Non-340B**	**340B DSH vs Non-340B ACH**
1 (largest hospitals by patient cost)	7.75%	5.55%	27.6% higher
2	8.32%	6.73%	33.0% higher
3	9.10%	6.83%	25.1% higher
4 (smallest hospitals by patient cost)	9.59%	7.45%	39.7% higher
Total	**7.96%**	**6.25%**	**27.4% higher**

Source: CMS HCRIS Hospital Cost Report Form 2552-10 FY2015
Notes: Costs reported are calculated as average per facility within cohort and quartile
Unreimbursed and Uncompensated Care Costs = Bad Debt + Charity Care + Public Payer Shortfall

The difference in unreimbursed and uncompensated costs, proportional to total costs, is further illustrated in Figure 1. Facility cohorts are labeled as Small, Small-Medium, Medium-Large, and Large, corresponding to total cost-based quartiles 4, 3, 2, and 1 respectively.

Figure 1. Percent of Unreimbursed and Uncompensated Care for 340B DSH and Non-340B ACH, FY2015



Source: CMS HCRIS Hospital Cost Report Form 2552-10 FY2015

[14] Relative percentage difference calculated as follows: [7.96% (340B DSH) – 6.25% (Non-340B)]/6.25% (Non-340B).

Analyses presented here have shown that 340B hospitals provide, on average and overall, higher rates of unreimbursed and uncompensated care, and that they care for a higher percentage of low income patients than non-340B ACHs. However, it is apparent that looking at either metric in isolation is not sufficient to determine the safety net status of a given hospital. A given hospital may have lower levels of uncompensated care and unreimbursed costs, yet may treat a high level of low-income patients.

To explore this point further, we calculated the ratio of unreimbursed and uncompensated care to total patient care costs for all 2,505 study hospitals, and selected 340B hospitals with rates below the combined (340B and non-340B hospitals) median of 6.4%. The overwhelming majority of these 340B hospitals have a low-income patient load exceeding the 11.75% DSH threshold by two or more times. Specifically, of the 425 340B hospitals with unreimbursed and uncompensated care costs below the combined median, 99.5% have a low-income load (equivalent to the DSH percentage) of 23.5% or higher, with an average of 42% low income patient load.

As a point of comparison, the group of non-340B ACHs with rates of unreimbursed and uncompensated care *above* the combined median of 6.4%, have an average of only 11% low income patient load. This comparison helps illustrate the importance of considering both unreimbursed and uncompensated care levels and low-income patient load, when assessing the role of 340B hospitals as safety net providers.

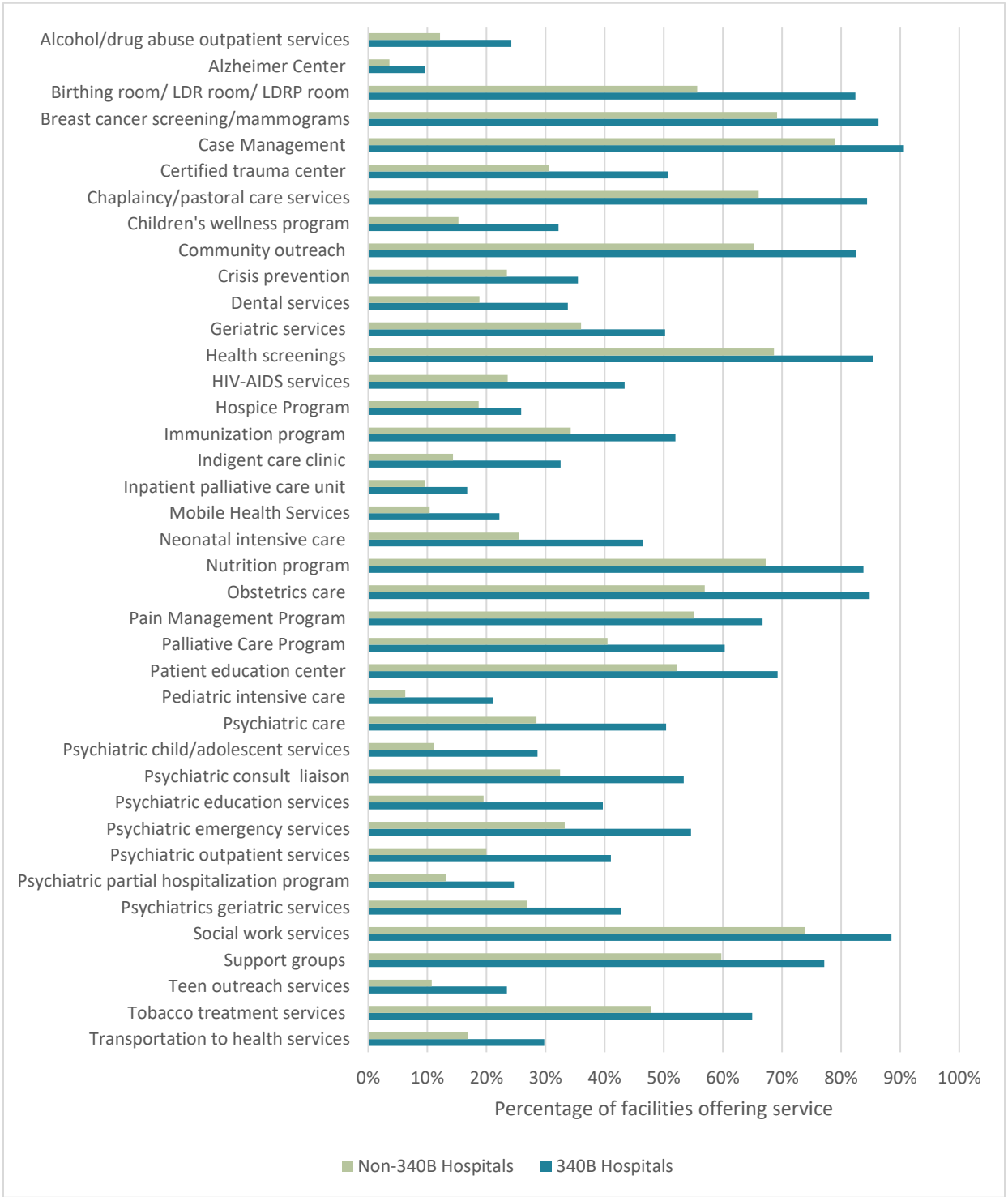
Providing Specialized and Community Services

A categorical comparison of specialized services provided by hospitals, using the AHA survey data for fiscal year 2015, is illustrated in Figure 2. Prior work has shown that these key services, which support community-based health initiatives, behavioral health and other vital health-related programs that serve particularly vulnerable populations, are often underpaid.[15] Services such as social work, psychiatric emergency, tobacco treatment programs, and health screenings are only a few that stand out as being offered at proportionally more 340B DSHs than at non-340B ACHs.

Overall, the AHA survey information indicates that 340B hospitals provide community health and other specialized services at a proportionally higher rate than do non-340B hospitals, further enhancing these facilities' contributions as safety net facilities, as they provide a wide range of services to low-income and otherwise vulnerable patient populations.

[15] Dobson Davanzo & Associates, 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

Figure 2. Comparison of Specialized Services Provided by 340B and Non-340B Hospitals



Source: AHADataviewer.com based on FY2015 AHA Annual Survey Database with updates. Licensed by Health Forum, an American Hospital Association affiliate. Report created May 25, 2017, by Diana Culbertson.

Conclusion

This study updates prior work commissioned by 340B Health, which found that 340B DSHs provide a higher level of care to low-income patients compared to non-340B hospitals. This study found similar results, suggesting that in FY 2015, 340B DSHs in general continue to see a higher low-income patient caseload and provide higher rates of unreimbursed and uncompensated care (charity care, bad debt and public payer shortfall cases) than non-340B ACHs. 340B DSHs represent 38% of hospitals, but are responsible for 60% of total unreimbursed and uncompensated care. 340B DSH hospitals also continue to be more likely than non-340B ACHs to provide specialized services that are critical to vulnerable patients but are often underpaid, such as HIV/AIDS services, trauma care services, and alcohol/drug abuse outpatient services. As such, these results continue to support the conclusion that it is important to use these metrics to evaluate the safety net status of providers and that the 340B DSHs provide higher levels of care to low income patients than non-340B hospitals.

APPENDIX 1: SUMMARY OF PUBLIC HEALTH AND SPECIALIZED SERVICES PROVIDED BY 340B DSH AND NON-340B ACH HOSPITALS

FY2015					
Service	340B Hospitals (n=950)		Non-340B Hospitals (n=1500)		Difference
	Count	Percent	Count	Percent	
Alcohol/drug abuse outpatient services	230	24.21%	182	12.13%	12.08%
Alzheimer center	91	9.58%	54	3.60%	5.98%
Birthing room/ LDR room/ LDRP room	783	82.42%	835	55.67%	26.75%
Breast cancer screening/mammograms	820	86.32%	1,038	69.20%	17.12%
Case management	861	90.63%	1,184	78.93%	11.70%
Certified trauma center	482	50.74%	458	30.53%	20.20%
Chaplaincy/pastoral care services	802	84.42%	991	66.07%	18.35%
Children's wellness program	306	32.21%	229	15.27%	16.94%
Community outreach	810	82.53%	1,061	65.27%	17.26%
Crisis prevention	337	35.47%	352	23.47%	12.01%
Dental services	321	33.79%	282	18.80%	14.99%
Geriatric services	477	50.21%	540	36.00%	14.21%
Health screenings	811	85.37%	1,030	68.67%	16.70%
HIV-AIDS services	412	43.37%	354	23.60%	19.77%
Hospice program	246	25.89%	280	18.67%	7.23%
Immunization program	494	52.00%	514	34.27%	17.73%
Indigent care clinic	309	32.53%	215	14.33%	18.19%
Inpatient palliative care unit	159	16.74%	143	9.53%	7.20%

FY2015					
Mobile health services	211	22.21%	156	10.40%	11.81%
Neonatal intensive care	442	46.53%	383	25.53%	20.99%
Nutrition program	796	83.79%	1,009	67.27%	16.52%
Obstetrics care	806	84.84%	854	56.93%	27.91%
Pain management program	634	66.74%	826	55.07%	11.67%
Palliative care program	573	60.32%	607	40.47%	19.85%
Patient education center	658	69.26%	784	52.27%	17.00%
Pediatric intensive care	201	21.16%	94	6.27%	14.89%
Psychiatric care	479	50.42%	427	28.47%	21.95%
Psychiatric child/adolescent services	272	28.63%	167	11.13%	17.50%
Psychiatric consult liaison	507	53.37%	487	32.47%	20.90%
Psychiatric education services	377	39.68%	293	19.53%	20.15%
Psychiatric emergency services	519	54.63%	499	33.27%	21.36%
Psychiatric outpatient services	390	41.05%	300	20.00%	21.05%
Psychiatric partial hospitalization program	234	24.63%	198	13.20%	11.43%
Psychiatrics geriatric services	406	42.74%	403	26.87%	15.87%
Social work services	841	88.53%	1,108	73.87%	14.66%
Support groups	733	77.16%	896	59.73%	17.42%
Teen outreach services	223	23.47%	161	10.73%	12.74%
Tobacco treatment services	617	64.95%	717	47.80%	17.15%
Transportation to health services	283	29.79%	254	16.93%	12.86%

Source: AHADataviewer.com based on FY2015 AHA Annual Survey Database with updates. Licensed by Health Forum, an American Hospital Association affiliate. Report created May 25, 2017, by Diana Culbertson.

APPENDIX 2: TECHNICAL APPENDIX

This appendix provides additional details surrounding the data sources, methods and assumptions used in the analyses in this report. Specifically, it outlines the processes used to construct 340B and non-340B hospital cohorts, adjust for outlying and other data anomalies, and build analytical measures from FY 2015 cost reports.

Selection of 340B DSHs & Non-340B ACHs

Study hospitals were identified using the 2016 IPPS Impact File and the Health Resources & Services Administration (HRSA) 340B OPAIS Covered Entity Daily Report.[16, 17] From the Impact File, all provider CCNs with provider type = 0 (IPPS) were selected for the initial group of all potential study hospitals. Next, the HRSA Daily Report provided additional information to identify hospitals active with the 340B program during fiscal year 2015. Using the HRSA Daily Report, 340B parent entities were identified by unique Medicare Provider Number (CCN) and removed from the Impact File; remaining hospitals represented the initial comparison population of non-340B ACHs. With the focus of the study on 340B disproportionate share hospitals, the 340B cohort was further refined by selecting only those HRSA qualifying records with PROGRAM CODE = DSH. This selection process resulted in 999 340B DSHs and 1,806 Non340B ACHs.

To further evaluate and refine the final set of hospitals to include in each of the study cohorts, a series of additional filters and exclusions were made, based on information contained in the FY 2015 cost reports. These included:

- When a study CCN has no matching CCN in the FY 2015 cost report, the CCN is dropped from the study; (N=95)
- Cost reports with multiple records for a given CCN were deleted, except for the report representing the longest time spans between fiscal year start and end dates.[18]
- Cost report records were dropped in cases where no total patient care costs were reported (N=1)
- Log of total patient care costs per bed was calculated as ln(total patient care costs/ total number of beds).[19] Mean and Standard deviation of log total patient care costs per bed were calculated for the study population, and records were excluded if the natural log of total patient care costs per bed was above or below 2 standard deviation of the mean log of total patient care costs per bed. (N=152)

[16] https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/FY2016-IPPS-Final-Rule-Home-Page-Items/FY2016-IPPS-Final-Rule-Data-Files.html

[17] Health Resources & Services Administration (HRSA) Office of Pharmacy Affairs, 340B OPAIS Covered Entity Daily Report, downloaded version 18OCT2017

[18] A total of 35 CCNs in the study population were observed having more than one cost report during FY2015. From the associated cost reports, no instances of overlapping periods of reporting were observed, suggesting that reports covering the longest period of time will most accurately represent annual hospital costs.

[19] Total patient care costs were reported on Worksheet A (lines 118, column 7), and total number of beds on Worksheet S-3 (lines 27, column 2).

- All records where the total unreimbursed and uncompensated costs were not reported (N=49)

- Finally, cost report records with total patient care costs reported to be less than the sum of the costs for unreimbursed and uncompensated care were excluded. (N=3) More specifically, if amounts in Worksheet S-10 (lines 7, 11, 15, 21, and 29—generally, unreimbursed and uncompensated costs) are greater than total patient care costs (Worksheet C, Part I, line 202, col 3), the record was excluded.

- Ultimately, 2,505 hospitals remained in the study: 340B DSH = 955, Non-340B ACH = 1,550.

Cost Report Data Element Definitions

For FY 2015, CMS/HCRIS Hospital Cost Report Form 2552-10 was utilized, and the key variables of focus in this report include the following:

- **Total Patient Care Cost** (Worksheet A, line 118): This line on the cost reports is the sum of multiple lines that break out the general cost centers for acute inpatient care.

- **Charity Care** (Worksheet S-10, line 23, columns 1-3): These fields capture the charity of charity care for insured, uninsured and total (combined).

- **Bad Debt** (Worksheet S-10, line 29): Represents total cost of non-Medicare and non-reimbursable Medicare bad debt.

- **Public Payer Shortfall** (Worksheet S-10, lines 8, 12, 16): These fields are described as the difference between net revenue and net cost for Medicaid, SCHIP, and indigent cases.

- **Total Unreimbursed and Uncompensated Care** (Worksheet S-10, line 31): As reported in the cost reports, this is the sum of all charity care, bad debt, and public payer shortfall.

- **Low Income Patient Load** (Worksheet E, Part A, lines 30, 31, 32): Line 32 gives the sum of the two ratios of 1) sum of SSI days -to- Medicare Part A days + 2) sum of Medicaid days -to- total patient days.

- **Number of Beds** (Worksheet S-3, Part I, line14): Bed days listed in this field in cost reports reflect the number of acute care bed days by facility.

- **Total Hospital Costs** (Worksheet C, Part I, line 202, col 3): A sum of all hospital costs, much more comprehensive than total patient care costs, this line item includes patient care costs as well other operating and ancillary costs.

- **Total Care Costs and Cost of Uncompensated Care** (Worksheet S-10, lines 7, 11, 15, 21, 29): These lines contain total patient care costs for low-income, uninsured patients, as well as other charity and unreimbursed and uncompensated care. In the process of selecting the final set of hospitals for this study, these costs were used as the basis to

exclude report records in the event that the overall unreimbursed and uncompensated care costs exceeded reported total cost (eliminated 3 records).

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