A 2018 Update of Cost Savings and Marketplace Analysis of the Health Care Group Purchasing Industry

Dobson | DaVanzo

A 2018 Update of Cost Savings and Marketplace Analysis of the Group Purchasing Industry

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Dobson | DaVanzo & Associates, LLC was commissioned by the Healthcare Supply Chain Association (HSCA) to update its 2014 report. That report detailed the importance of group purchasing organizations (GPOs) in improving efficiency and generating cost savings to the U.S. health care system. In this 2018 study update, we quantified GPOproduced hospital and nursing home cost savings for the overall health care sector, as well as Medicare and Medicaid programs, for one-, five-, and ten-year periods through 2026. In order to accomplish this, we conducted a new survey which confirmed the findings from prior efforts to collect GPO cost savings information.

For over 100 years, GPOs have helped hospitals and other health care providers realize cost savings and create contract efficiencies by aggregating purchasing volume to negotiate discounts with manufacturers, distributors, and other vendors. These are important

services that GPOs provide to the health care system, helping healthcare providers control and reduce their non-labor supply-related purchasing costs.

reduce total health care spending for hospital and nursing homes by up to \$456.6 billion over the next ten years (2017-2026).

GPOs are projected to

Medicare is estimated to account for over 25 percent (or \$116.3 billion) and Medicaid – approximately 20 percent (or \$90.2 billion) of these cost savings.

GPOs serve as "trusted partners" to hospitals and other health care providers who must act as prudent and cost-conscious buyers in making purchases.² GPOs negotiate contracts for

¹ Rooney, C. (2011). The value of group purchasing organizations in the United States. World Hosp Health Serv.

² Amendment to Medicare Provider Reimbursement Manual, Part 1, Chapter 8. Transmittal 450, December 2011.

hospitals to purchase essential supplies while minimizing costs. GPOs do not purchase or take ownership of products; they instead negotiate competitive contract pricing. GPOs generate savings by reducing costs across sales and supply chains to providers using economies of scale, increased negotiating power, expertise in purchasing high value supplies, and by reducing the administrative costs to providers for purchasing these products. Dobson | DaVanzo's survey of hospitals and nursing homes conducted for this study revealed that GPO activities could affect 59.6 percent (penetration rate) of hospital and nursing home total non-labor spending. Our survey also found that GPOs could reduce supply-related purchasing costs to nursing homes and hospitals by about 13.1 percent, compared to the costs for providers who do not utilize GPO services. GPOs are able to reduce their members' price per unit by employing market intelligence, product expertise, and volume purchasing.³

To develop the cost savings projections presented in this report, we used our survey data along with the National Health Expenditure (NHE) data published by CMS. To evaluate estimated cost savings that GPOs produce, we show a one-year (2016) estimate, as well as a 5-year estimate (2017-2021), and a 10-year estimate (2017-2026). Additionally, we incorporated updated estimates from the Federal Register on the non-labor proportion (e.g., supplies, implantable medical devices, and prescription drugs) of hospital and nursing home spending.

Instead of using a literature review, as in our 2014 report, to estimate GPO penetration and savings rates to calibrate our savings projections, we conducted a survey of hospital and nursing home provider networks that used GPO services in their purchases. We received responses from 39 stakeholders representing 530 facilities with a total business volume of \$59.7 billion or about 5 percent of total 2017 hospital and nursing home revenues. Using this survey, we captured recent changes in provider purchasing patterns, and thus, updated our understanding of the importance of GPO activities within our cost estimation model.

With these updated data, we estimated that GPOs will generate hospital and nursing home savings to the entire U.S. health care system of:

- \$34.1 billion for year 2016;
- \$197.9 billion for the subsequent five-year period of 2017-2021; and
- \$456.6 billion for the subsequent ten-year period of 2017-2026.⁴

³ Hu Q, Shwarz L. (2011). The Impact of Group Purchasing Organizations on Healthcare-Product Supply Chains. Purdue University.

⁴ Our 2014 report estimated that GPO savings to the entire health care system approximated between \$25.0 and \$55.2 billion in 2012; \$167.9 and \$370.0 billion over the subsequent 5-year period (2013 to 2017); and \$392.2 and \$864.4 billion over the subsequent 10-year period (2013 to

Employing the same projection methods, we calculated that Medicare cost savings attributable to GPOs could account for over 25.0 percent of total hospital and nursing home GPO savings for the entire health care sector over the projection period or:

- \$8.7 billion for year 2016;
- \$50.4 billion for the subsequent five-year period of 2017-2021; and
- \$116.3 billion for the subsequent ten-year period of 2017-2026.⁵

For Medicaid, hospital and nursing home GPO-attributable cost savings could approximate 20 percent of total health care savings for the projection period, or:

- \$6.8 billion for year 2016;
- \$39.1 billion for the subsequent five-year period of 2017-2021; and
- \$90.1 billion for the subsequent ten-year period of 2017-2026.⁶

These estimates are somewhat lower than the those presented in our 2014 report. These moderate reductions in the impact of GPOs result from downward revisions in our survey-based estimates of GPO penetration rates and savings rates, as compared to the literature-based estimates we adopted in our 2014 report. The downward revision of the penetration rate is somewhat larger than that of the savings rate.

This may be due to GPOs success in product commoditization where additional savings are more difficult to achieve, hence, the focus is on remaining services not yet commoditized. Other explanations include hospitals' ability to self-contract, with organizations contracting on their own for clinically complex and sophisticated items (such as high-end implants and other clinical preference products). Two other factors include the availability of better benchmarking data as well as the growth of regional alliances and cooperatives.

In our 2014 report, we used 71.71 percent and 80.0 percent for GPO penetration rates and 10.0 percent, 15.0 percent, and 18.0 percent for GPO savings rates based on studies by Muse & Associates⁷ and Schneller.⁸

 Our 2018 survey produced a weighted mean GPO penetration rate value of 59.6 percent. For GPO savings rates, we used the weighted mean value of 13.1 percent. These ranges represent the central tendency of the data we collected in our survey.

⁵ Our 2014 report estimated that GPO savings to Medicare approximated between \$44.9 and \$98.1 billion for the 5-year period (2013 to 2017); and \$105.4 and \$229.3 billion over the 10-year period (2013 to 2022).

⁶ Our 2014 report estimated that GPO savings to Medicaid approximated between \$33.2 billion and \$72.6 billion for the 5-year period (2013 to 2017); and \$77.9 billion and \$169.5 billion over the 10-year period (2013 to 2022).

⁷ Muse & Associates. (2002). The Role of Group Purchasing in the Health Care System and the Impact on Public Expenditures is Additional Restrictions are Imposed on GPO Processes.

⁸ Schneller, E. (2009). The Value of Group Purchasing – 2009: Meeting the Needs for Strategic Savings. Health Care Sector Advances, Inc.

We find that our current survey-based results are largely consistent with prior analyses of GPO savings indicating that study surveys as a group consistently point to sizable and important GPO savings (on the order of one half billion over ten years) to hospitals and nursing homes.

It should be noted that these projections are on the conservative side, particularly from the viewpoint that GPOs have been bringing down the cost of supplies to hospitals for over 100 years. This means that there is some portion of the cumulative savings attributable to GPOs which is "buried" in the baseline that is incalculable. Some of these buried savings are due to lower personnel costs related to group purchasing, and some are due to product commoditization, in addition to the unit price savings estimated in this report.

Introduction

This study is a continuation in a series of studies commissioned by the Health Care Supply Chain Association (HSCA), formerly the Health Industry Group Purchasing Association (HIGPA), presenting marketplace analysis and cost savings projections of group purchasing organizations (GPOs) to the U.S. health care system. Specifically, this report updates a Dobson | DaVanzo analysis published in 2014, which estimated the size of GPO savings, and GPO market penetration in terms of non-labor costs covered by GPO activities. We ultimately quantified cost savings to hospitals and nursing homes produced by GPOs to the overall health care sector as well as to the Medicare and Medicaid programs for year 2016, the subsequent 5-year period of 2017-2021, and the subsequent 10-year period of 2017-2026.

Background on GPOs

Group purchasing organizations play a significant role in the U.S. health care system, consolidating purchasing power across providers and bringing efficiency to sales supply chains, resulting in overall cost savings to providers and patients. Recent estimates suggest that there are over 600 GPOs, and that 96.0 to 98.0 percent of hospitals utilize GPO contracts for their purchasing functions.9

GPOs negotiate contracts for hospitals and nursing homes to purchase essential supplies while minimizing costs. They do not purchase or take ownership of products; they instead negotiate competitive contract pricing. GPOs organize providers into purchasing groups to consolidate market share. This leads to increased negotiation power, volume discounts, and outsourcing to experts who can assess the needs of providers, and then supply them with the most appropriate products at the most competitive prices. GPO members and customers receive financial benefits through up-front pricing discounts, patronage dividends and distributions, and reduced administrative costs. Another way GPOs help save money is

⁹ Healthcare Supply Chain Association. A Primer on Group Purchasing Organizations. http://c.ymcdn.com/sites/www.supplychainassociation.org/resource/resmgr/research/gpo_primer.pdf. Retrieved April 20, 2018.

through product standardization. Additionally, GPOs help to reduce administrative costs to providers, who would have otherwise been required to dedicate additional staff to these tasks. ¹⁰ One study estimates that this shift in administrative responsibilities alone saves providers over \$2 billion annually.¹¹

GPOs reduce costs to providers through a broad range of activities including "improvements in business processes for sourcing, procuring, receiving, storing, transferring, and consuming health care commodities. These activities include quality control programs, training and education, information sharing/best practice guidelines (e.g., new models/methods to evaluate drugs, devices, therapies, and other products; appropriate staffing models; inventory control; product evaluations; emerging technologies; etc.), and new software systems (electronic infrastructure/connectivity) to streamline business processes and the movement of products."12

In addition to the cost-savings that GPOs achieve, they can improve care quality as GPOs ensure that hospitals and providers are delivered the appropriate supplies for each patient. The contribution of GPOs to the U.S. health care industry, therefore, go beyond unit costs of individual products and encompass a much broader focus on organizational systems and processes. Collectively, GPO services lead to increased efficiencies, better use of staff, and lower total costs. Thus, the ongoing role played by GPOs result in a variety of savings to providers, to patients, and to the entire health care system. 13

Savings Estimates of GPOs

Several studies have attempted to use survey-based approaches, and other assumptionbased models to quantify the savings to U.S. healthcare produced by GPOs. A 2009 Schneller study estimated that GPOs saved approximately \$36 billion annually based on findings from a survey of hospitals.¹⁴ A Goldenberg and King report in the same year estimated annual savings attributable to GPOs of \$29.3 billion to \$64.5 billion to the U.S. health care sector.¹⁵ Although these studies have methodological limitations, particularly the reliance on perceptions and estimations by hospital managers, other investigators have found these findings directionally correct as did we in this study. 16

¹⁰ Goldenberg D, King R. (2009). A 2008 Update of Cost Savings and a Marketplace Analysis of the Health Care Group Purchasing Industry. Locus Systems.

¹¹ Schneller, E. (2009). The Value of Group Purchasing- 2009: Meeting the Needs for Strategic Savings. Health Care Sector Advances, Inc.

¹² Goldenberg D, King R. (2009). A 2008 Update of Cost Savings and a Marketplace Analysis of the Health Care Group Purchasing Industry. Locus Systems.

¹³ Goldenberg D, King R. (2009). A 2008 Update of Cost Savings and a Marketplace Analysis of the Health Care Group Purchasing Industry. Locus Systems.

¹⁴ Schneller, E. (2009). The Value of Group Purchasing- 2009: Meeting the Needs for Strategic Savings. Health Care Sector Advances, Inc.

¹⁵ Goldenberg D, King R. (2009). A 2008 Update of Cost Savings and a Marketplace Analysis of the Health Care Group Purchasing Industry. Locus Systems.

¹⁶ Hu Q, Shwarz L. (2011). Controversial Role of GPOs in Healthcare-Product Supply Chains. Production and Operations Management. 20(1):1-15.

The Dobson | DaVanzo 2014 report¹⁷ presented a methodology for quantifying the savings attributable to GPOs, and projected savings estimates for 2012, as well as over the subsequent 5-year, and 10-year periods. Savings were calculated across the entire health care sector, and within both the Medicare and Medicaid programs. Our ten-year overall savings estimate from the 2014 report ranged from \$380.8 billion to \$838.3 billion.

This Dobson | DaVanzo 2018 update follows the same savings projection methodology as was used in its 2014 report. However, to capture and reflect more recent changes in provider purchasing patterns and the GPO marketplace, our estimates of GPO penetration and savings rates were based on the findings from a recent survey that we conducted specifically for this study. We directly surveyed hospital and nursing home networks that used GPO services, instead of relying upon a literature review as in the 2014 report.

¹⁷ Dobson et al. (2014). A 2014 Update of Cost Savings and Marketplace Analysis of the Health Care Group Purchasing Industry.

In order to estimate the potential value of GPOs to the U.S. health care sector, we first established the actual heath care expenditures that are subject to GPO management and review using the National Health Expenditures (NHE) data. 18 The NHE is a data set produced by the Centers for Medicare and Medicaid Services (CMS) on an annual basis. It contains historic, current, and projected health care expenditures overall and by provider type and payer. The most recent NHE data includes current expenditures for 2016 and projections through 2026. Exhibit 1.1 details health expenditures by various service categories. According to NHE data, total health care expenditures in 2016 were \$3,337.2 billion.

Exhibit 1.1 also presents the compound average growth rate (CAGR) in expenditures over the ten-year window from 2017 to 2026 for each service category. The CAGR provides projections of the change over time in expenditures among the various service categories. The CAGR for all health care expenditures is projected to grow at 5.6 percent annually from 2017 to 2026, with hospital and nursing home spending increasing annually at approximately 5.6 and 5.0 percent respectively. Among all service categories, prescription drugs are projected to have the highest CAGR (averaging 6.7 percent annually), followed by home health (6.6 percent), retail sales of medical products (6.4 percent), and durable medical equipment (6.0 percent); dental services are projected to have the lowest CAGR (at 4.5 percent annually) within this projection window.

¹⁸ Centers for Medicare and Medicaid Services. (2018). National Health Expenditures Projections 2017-2026.

While GPOs have the potential to reduce spending across numerous health care sectors, sectors most influenced by GPO penetration are hospitals and nursing homes. Hospitals and nursing homes account for a total of 37.0 percent of total health care expenditures (hospitals 32.0 percent and nursing homes 5.0 percent). Other areas such as home health, and retail purchases of prescription drugs, durable medical equipment (DME) and other medical supplies were not included in our analysis due to difficulties in quantifying GPO penetration within these sectors, and our inclination toward a conservative estimate.

Exhibit 1.1. National Health Expenditures Data by Service Category (\$ in billions)

		CAGR
Type of Expenditure (billions \$)	Health Care Expenditures 2016	2017 to 2026
National Health Expenditures	\$3,337.2	5.6%
Health Consumption Expenditures	\$3,179.8	5.6%
Personal Health Care	\$2,834.0	5.6%
Hospital Care	\$1,082.5	5.6%
Professional Services	\$881.2	5.2%
Physician and Clinical Services	\$664.9	5.3%
Other Professional Services	\$92.0	5.5%
Dental Services	\$124.4	4.5%
Other Health, Residential, and Personal Care	\$173.5	5.9%
Home Health Care	\$92.4	6.6%
Nursing Care Facilities and CCRC	\$162.7	5.0%
Retail Outlet Sales of Medical Products	\$441.7	6.4%
Prescription Drugs	\$328.6	6.7%
Other Medical Products	\$113.2	5.5%
Durable Medical Equipment	\$51.0	6.0%
Other Non-Durable Medical Products	\$62.2	5.1%

Source: Centers for Medicare and Medicaid Services, National Health Accounts 2018.

Target of Potential GPO Impact

To calculate the value that GPOs provide to both hospitals and nursing homes, it is necessary to understand the proportion of health care expenditures within these service categories that might be influenced by GPOs.

Calculation of the Labor and Non-Labor Share of Total Expenditures

While GPOs manage some labor-and staffing-related costs (e.g., nursing services), these costs have been difficult to quantify to date, and are therefore excluded from our analysis. To exclude the cost of labor, we first removed the non-labor component of expenditures for hospitals and nursing homes. Our calculations of the non-labor proportions were based on CMS' estimations of labor contents of provider expenses as published in its annual Federal Register update. The Federal Register provides information on the labor proportion as a percent of provider expenditures that CMS uses to apply the area wage index to its Medicare payments for the upcoming year. We used this percent as our estimate of the labor proportion and calculated the non-labor proportion by subtracting the labor proportion from 100 percent. Under this approach, we applied a labor proportion of 69.6 percent for hospitals, ¹⁹ resulting in a non-labor proportion of 30.4 percent. For nursing homes, the labor proportion was 68.9 percent, resulting in a non-labor proportion of 31.1 percent.²⁰

Summary Step #1:



As shown in Exhibit 1.2 below, using the non-labor proportions of NHE data for hospitals and nursing homes, we calculate non-labor expenditures of \$329.1 billion for hospitals and \$50.6 billion for nursing homes in 2016 using CMS Office of the Actuary (OACT) growth rates, for the 5-year projection window from 2017 through 2021, the non-labor expenditures are estimated to approximate \$1,917.2 billion for hospitals and \$285.8 billion for nursing home providers, which are almost six times larger than the respective estimates for year 2016 alone. For the 10-year period from 2017 through 2026, non-labor proportions are estimated to amount to \$4,430.4 for hospitals and \$652 billion for nursing or about 13 times larger than the 2016 savings.

¹⁹ Center for Medicare and Medicaid Services, Federal Register, Vol. 81, No 81, April 27, 2016.

²⁰ Center for Medicare and Medicaid Services, Federal Register, Vol. 81, No 79, April 25, 2016.

Exhibit 1.2. Calculation of the Non-Labor Share of Expenditures for Hospitals and Nursing Home for Year 2016, 5-Year Projection (2017-2021), and 10-year Projection (2017-2026) (\$ in billions)

Year 2016		5-Year Projection (2017-2021)		10-Year Projection (2017-2026)					
Type of Expenditure	Total Expenditures	Labor Portion	Non- labor Portion	Total Expenditures	Labor Portion	Non- labor Portion	Total Expenditures	Labor Portion	Non- labor Portion
Hospital Care	\$1,082.5	\$753.4	\$329.1	\$6,306.6	\$4,389.4	\$1,917.2	\$14,573.7	\$10,143.3	\$4,430.4
Nursing Homes	\$162.7	\$112.1	\$50.6	\$918.9	\$633.1	\$285.8	\$2,096.4	\$1,444.4	\$652.0
Total	\$1,245.2	\$865.5	\$379.7	\$7,225.5	\$5,022.5	\$2,203.0	\$16,670.1	\$11,587.7	\$5,082.4

Source: Dobson | DaVanzo analysis of the National Health Accounts 2018 as published by the Centers for Medicare and Medicaid Services.

Calculation of the GPO Penetration Rate

Our next step was to calculate the proportion of expenditures for providers utilizing GPOs, using the following formula:

Summary Step #2:

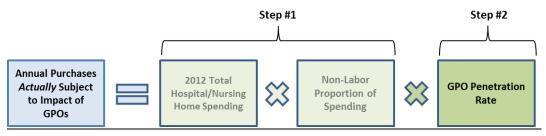


Exhibit 1.3 details the step-down calculation from the total non-labor proportion of expenditures to the range we will use for potential GPO savings.

To estimate GPO penetration rates, we conducted a survey of hospitals and nursing homes that used GPO services in their purchases. We received responses from 39 stakeholders, who represented a total business volume of nearly \$59.7 billion, or approximately 5.0 percent of the industry spending on hospital and nursing home services overall in 2017. Based on the collected survey data, we use the revenue-weighted mean value of GPO penetration in our model. This value, 59.6 percent, represents the mathematical average of the survey responses after weighting the data to account for the total revenue of the respondent. Our current survey data suggest that there is agreement about the level of GPO penetration into hospitals and nursing homes among those who

responded to our survey and prior surveys. In addition, for our 2018 study, several large GPOs independent of the survey reported that penetration rates ran between 45.0 percent and 83.0 percent with a weighted average of 64 percent. This is confirmatory of our survey estimate of 59.6 percent.

Under a 59.6-percent GPO penetration rate, the total amount of health care expenditures for hospitals and nursing homes subject to the impact of GPOs is \$226.2 billion for 2016, \$1,312.3 billion for period 2017-2021, and \$3,027.6 billion for period 2017-2026.

Exhibit 1.3. Calculation of GPO Penetration Rates for Year 2016, 5-Year Projection (2017-2021), and 10-Year Projection (2017-2026) (\$ in billions)

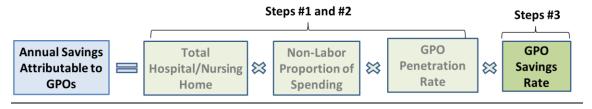
Tuno of	Year 2	Year 2016		5-Year Projection (2017-2021)		10-Year Projection (2017-2026)	
Type of – Expenditure	Non-Labor Portion	Penetration 59.6 Percent	Non-Labor Portion	Penetration 59.6 Percent	Non-Labor Portion	Penetration 59.6 Percent	
Hospital Care	\$329.1	\$196.0	\$1,917.2	\$1,142.1	\$4,430.4	\$2,639.2	
Nursing Homes	\$50.6	\$30.1	\$285.8	\$170.2	\$652.0	\$388.4	
Total	\$379.7	\$226.2	\$2,203.0	\$1,312.3	\$5,082.4	\$3,027.6	

Source: Dobson | DaVanzo analysis of the National Health Accounts 2018 as published by the Centers for Medicare and Medicaid Services.

GPO Cost Savings **Estimates**

To estimate total savings attributable to GPOs, we took the results of the calculations (under Summary Steps 1 and 2) producing the non-labor portions of spending for hospitals and nursing homes under GPO influence, and incorporated estimated GPO savings rates. Similar to the way we determined the model's GPO penetration rates, we used the total revenue weighted mean value of a 13.1 percent savings rate to calculate our savings estimate. The following section presents our projections of GPO impact on total health care expenditures, as well as Medicare expenditures, and Medicaid expenditures for hospitals and nursing homes. Our calculation formula for estimating total GPOattributable savings can be summarized as followed:

Summary Step #3:



GPO Impact on Total Health Care Cost Savings

The steps presented above allow us to calculate how much health care expenditures could have had been without the cost savings associated with GPOs included in CMS' estimates of national health care expenditures.

Exhibit 2.1 summarizes our results for non-labor hospital and nursing home expenditures under the mean penetration rate of 59.6 percent. Exhibit 2.1 also presents what these expenditures would amount to without the savings produced by GPOs, expenditures in nursing homes and hospitals could have been as high as \$260.4 billion for year 2016; \$1,510.9 billion for the period 2017-2021; and \$3,485.7 billion for the ten-year period 2017-2026.

Exhibit 2.1: Hospitals and Nursing Homes' Total Health Care Expenditures Without Savings Attributable to GPOs for Year 2016, 5-Year Projection (2017-2021), and 10-Year Projection (2017-2026) (\$ in billions)

Non-Labor Portion		GPO Portion of Expenditures (col. 1 times penetration rate of 59.6 percent)	Expenditures with No GPO Savings (col. 2 divided by (1 – 0.131)	Cost Savings Attributable to GPOs (col. 3 minus col. 2)
	1	2	3	4
2016	\$379.7	\$226.3	\$260.4	\$34.1
5-Year Projection (2017-2021)	\$2,203.0	\$1,313.0	\$1,510.9	\$197.9
10-Year Projection (2017-2026)	\$5,082.4	\$3,029.1	\$3,485.7	\$456.6

Source: Dobson | DaVanzo analysis of the National Health Accounts 2018 as published by the Centers for Medicare and Medicaid Services.

The above Exhibit presents our cost savings projections for Year 2016, the 5-year projection (2017-2021), and the 10-year projection (2017-2026) under our GPO penetration and savings rate scenarios. Our calculation shows that total cost savings could have been \$34.1 billion for year 2016; \$197.9 billion for the 5-year period 2017-2021; and \$456.6 billion for the 10-year period of 2017-2026 under the impact of group purchasing.

GPO Impact on Medicare Cost Savings

To estimate the impact of GPOs on Medicare expenditures, our calculations followed the same steps described above for total health care expenditures, but we used only Medicare expenditures as the base.

As shown in Exhibit 2.2, Medicare expenditures for hospitals and nursing homes in 2016 totaled \$317.1 billion. After removing the labor proportion, hospitals and nursing homes' non-labor Medicare expenditures were approximately \$96.7 billion in 2016.

Exhibit 2.2. Hospitals' and Nursing Homes' Medicare Non-Labor Expenditures, 2016 (\$ in billions)

Base	Hospital Care	Nursing Homes	Total
Total Medicare Expenditures	\$277.5	\$39.6	\$317.1
Labor-related Share	69.6%	68.9%	
Labor Portion	\$193.1	\$27.3	\$220.4
Non-labor Portion	\$84.4	\$12.3	\$96.7

Source: Dobson | DaVanzo analysis of the National Health Accounts 2018 as published by the Centers for Medicare and Medicaid Services.

Exhibit 2.3 summarizes our estimated savings for non-labor hospital and nursing home expenditures assuming a GPO penetration rate of 59.6 percent and a GPO savings rate of 13.1 percent. Without GPOs, expenditures could have reached \$66.3 billion for year 2016; \$384.8 billion for the 5-year period 2017-2021; and \$887.8 billion for the 10-year projection 2017-2026,

Exhibit 2.3. Hospitals and Nursing Homes' Medicare Expenditures without Cost Savings Attributable to GPOs for Year 2016, 5-Year Projection (2017-2021), and 10-Year Projection (2017-2026) (\$ in billions)

	Non-Labor Portion	GPO Portion of Expenditures (col. 1 times penetration rate of 59.6 percent)	Expenditures with No GPO Savings (col. 2 divided by (1 – 0.131)	Cost Savings Attributable to GPOs (col. 3 minus col. 2)
	1	2	3	4
2016	\$96.7	\$57.6	\$66.3	\$8.7
5-Year Projection (2017-2021)	\$561.0	\$334.4	\$384.8	\$50.4
10-Year Projection (2017-2026)	\$1,294.4	\$771.5	\$887.8	\$116.3

Source: Dobson | DaVanzo analysis of the National Health Accounts 2018 as published by the Centers for Medicare and Medicaid Services.

The above Exhibit presents our projections of hospitals' and nursing homes' Medicare cost savings for Year 2016, 5-year projection (2017-2016), and 10-year projection (2017-2026. Our model shows that Medicare savings could be \$8.7 billion for year 2016; \$50.4 billion for the 5-year period 2017-2021; and \$116.3 billion for the 10-year period of 2017-2026 under the impact of group purchasing.

GPO Impact on Medicaid Cost Savings

Exhibits 2.4, and 2.5 contain step-down calculations of the impact of GPOs on Medicaid spending. The calculations follow the same steps described for total health care and Medicare expenditures, but this time, with only Medicaid expenditures as the base.

Exhibit 2.4 shows that Medicaid hospital and nursing home expenditures totaled \$246.2 billion in 2016. Removing the labor proportion leaves \$75.2 billion in expenditures.

Exhibit 2.4: Hospitals and Nursing Homes' Medicaid Non-Labor Expenditures, 2016 (\$ in billions)

Base	Hospital	Nursing Home	Total
Total Medicare Expenditures	\$196.2	\$50.0	\$246.2
Labor-related Share	69.6%	68.9%	
Labor Portion	\$136.6	\$34.5	\$171.0
Non-labor Portion	\$59.6	\$15.6	\$75.2

Source: Dobson | DaVanzo analysis of the National Health Accounts 2018 as published by the Centers for Medicare and Medicaid Services.

Exhibit 2.5 summarizes our results for non-labor hospital and nursing home expenditures under a penetration value of 59.6 percent and a savings rate of 13.1 percent. Without GPO savings, expenditures could have reached \$51.6 billion for year 2016; \$298.4 billion for the 5-year period 2017-2021; and \$687.9 billion for the 10-year projection 2017-2026.

Exhibit 2.5. Hospital's and Nursing Homes' Medicaid Expenditures without Savings Attributable to GPOs for Year 2016, 5-Year Projection (2017-2021), and 10-Year Projection (2017-2026) (\$ in billions)

	,	•		
	Non-Labor Portion	GPO Portion of Expenditures (col. 1 times penetration rate of 59.6 percent)	Expenditures with No GPO Savings col. 2 divided by (1 - 0.131)	Cost Savings Attributable to GPOs (col. 3 minus col. 2)
	1	2	3	4
2016	\$75.2	\$44.8	\$51.6	\$6.8
5-Year Projection (2017-2021)	\$435.3	\$259.4	\$298.5	\$39.1
10-Year Projection (2017-2026)	\$1,003.4	\$598.0	\$688.2	\$90.2

Source: Dobson | DaVanzo analysis of the National Health Accounts 2018 as published by the Centers for Medicare and Medicaid Services.

The above Exhibit presents our calculations of hospitals' and nursing homes' Medicaid cost savings for Year 2016, 5-year projection (2017-2016), and 10-year projection (2017-2026). Applying the weighted mean GPO savings rate of 13.1 percent, our model shows that Medicaid cost savings approximated \$6.8 billion for year 2016; \$39.1 billion for the 5-year period 2017-2021; and \$90.2 billion for the 10-year period of 2017-2026.

Discussion

GPOs provide important value by way of increasing efficiency in the U.S. health care system. By aggregating purchasing volume to negotiate discounts with manufacturers, distributors, and other vendors, GPOs help reduce costs and administrative responsibilities of providers while facilitating the provision of high-quality care through supplying providers with the most appropriate products.²¹ In 2012, the size of the hospital and nursing home GPO non-labor share marketplace was approximately \$314.4 billion. In 2016, the size of this marketplace was estimated to approximate \$379.7 billion, or a 20.8 percent increase as compared to 2012. The total impact of GPO cost savings comes to about 8 percent of total non-labor share expenditures.

Our recent survey indicates that GPOs affect about 59.6 percent of hospitals and nursing homes' non-labor spending. Through their ability to command market share and to negotiate volume discounts, GPOs could save their members and customers approximately 13.1 percent on their purchases. For 2016, this amounted to estimated GPO cost savings of \$34.1 billion. Over the subsequent 5-year (2017 to 2021) and 10year (2017 to 2026) periods, this amounted to \$197.9 billion and \$456.6 billion in GPO cost savings respectively. Public sector health care programs also achieved considerable cost savings in hospital and nursing home expenditures using GPOs, including estimated savings of \$116.3 billion to the Medicare program and estimated cost savings \$90.2 billion to the Medicaid program for the 10-year period of 2017-2026.

²¹ Rooney, C. (2011). The value of group purchasing organizations in the United States. World Hosp Health Serv.

It should be noted that the success GPOs have had in penetrating the healthcare marketplace has resulted in the GPO price structures becoming the de facto market price. This benefits payers, including the Medicare and Medicaid programs, by reducing the costs of providing services. These costs are reported on the Medicare cost reports and are used as part of the mechanism by which payment rates are determined for Medicare and other payers.

Even for items not currently purchased through GPOs, the power of lower prices negotiated by GPOs is present. These savings are not evident through examining the penetration rate or the savings rate. They are hidden and unquantifiable given that GPOs have been exerting downward impact on the cost of healthcare supplies for over 100 years and many products have become commodities. As a result, the estimated savings attributable to GPOs, calculated above is likely a conservative estimate.

One key aspect that our survey highlighted is a decrease in the proportion of the nonlabor component of hospital and nursing home costs that are subject to GPOs cost savings, that is, the penetration rate. This may be due to the past success GPOs have had in commoditizing many hospital and nursing home supplies. Other explanations include hospitals' ability to self-contract, with organizations contracting on their own for clinically complex and sophisticated items (such as high-end implants and other clinical preference products). Thus, as noted above, GPO savings accumulate over time and cannot be directly measured in our study, as GPOs concentrate their focus on areas where savings are yet to be achieved.

Overall, our current findings are consistent with other recent work by Dobson | DaVanzo and prior work by other authors. GPOs are estimated to save about one half billion dollars over ten years under multiple studies using surveys, literature reviews, and other different input data.