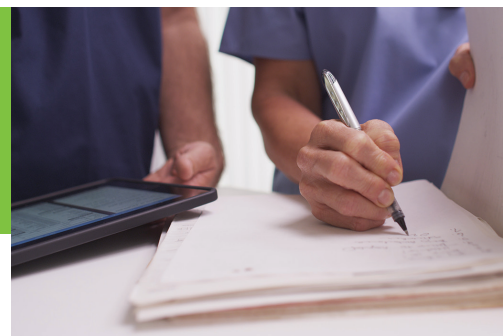


Health



24.5% Improvement Realized on Key CMS Performance Measures of Hospitals Using Evidence-Based Clinical Decision Support Tools

41 hospitals using both Lippincott Procedures and Lippincott Advisor for 2014 and 2015 achieved better Value-Based Purchasing performance than the national hospital median for the corresponding fiscal years 2016 and 2017.

INTRODUCTION AND KEY FINDINGS

Under the Hospital Value-Based Purchasing (VBP) Program, since 2012 the Centers for Medicare and Medicaid Services (CMS) has been incentivizing hospitals to improve patient care and minimize costs by structuring its reimbursement system to reward quality rather than quantity of services. Because the VBP program is designed to be budget neutral, many hospitals struggle to be rewarded rather than penalized.

These findings support the value and use of point-of-care tools—to help healthcare professionals effectively balance patient-centered, high-quality care delivery and cost minimization.

From 2014-2017, Wolters Kluwer partnered with the Rockburn Institute, a non-profit healthcare research consultancy group, to evaluate the results of two of Wolters Kluwer's evidence-based clinical decision support tools on various CMS performance measures—including VBP performance measures—at roughly 3,000 hospitals nationwide.

The study revealed that longer hospital use of Lippincott Advisor and Lippincott Procedures during the study period was often associated with higher scores on these measures. More specifically, hospitals that used **both** Lippincott Procedures and Lippincott Advisor during the full calendar years of 2014 and 2015 demonstrated:

- Higher (better) VBP Total Performance scores than the national hospital average
- A 24.5% higher average percent rank on its VBP Total Performance Score in Fiscal Year 2017 than all other hospitals
- Higher (better) VBP adjustment factors than the national hospital average
- VBP Efficiency Domain scores—derived from Medicare Spending Per Beneficiary rates—improved when using both Lippincott Procedures and Lippincott Advisor

These findings support the value and use of point-of-care tools—to help healthcare professionals effectively balance patient-centered, high-quality care delivery and cost minimization.

BACKGROUND AND SCOPE

Value-Based Purchasing Program

To fund VBP and incentivize the delivery of high-quality, efficient care, CMS reduces each hospital's base operating payment by up to 2%. Hospitals can earn back that withholding—and even earn bonuses—by achieving high VBP performance scores. In effect, hospitals compete with other hospitals and their own past performance to show achievement and improvement.

VBP assesses hospital performance using different quality domains (categories) that currently include: 1) Clinical Care, 2) Experience and Coordination of Care, 3) Safety, and 4) Efficiency and Cost Reduction. Since its inception, however, VBP design—including the number and titles of domains and their measures, the weight of the domains within overall VBP performance—has evolved. This is the domain structure projected to remain in place through FY 2022. Figure 1 presents domains for FY’s 2013–2017, as well as the specified domain weight.

Evolution of VBP Domain Weighting

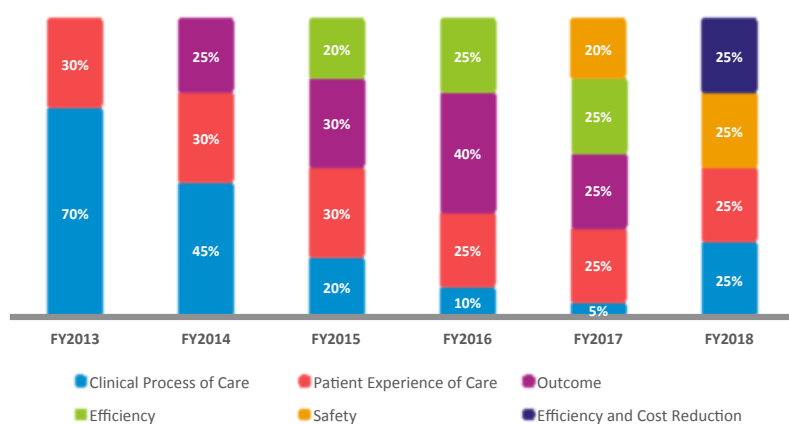


Figure 1: Evolution of VBP Domain Weighting, FY 2013-2018

Source: Centers for Medicare and Medicaid Services.

It’s important to take into account these design changes when looking at individual hospital and national scores year to year.

Total Performance Score

Each participating hospital receives an achievement score and an improvement score for each domain. The higher of the two is selected and weighted accordingly. All domain scores are then added together to create the VBP Total Performance Score (TPS). The TPS is then converted into the hospital’s adjustment factor.

Adjustment Factor

Specifically, the adjustment factor is a multiplier CMS applies to a hospital’s base payment, which covers each patient’s stay

during a given time period. Adjustment factors above 1.0 indicate that a hospital will receive back from CMS their full withholding plus a bonus. Hospitals with an adjustment factor below 1.0 will be assessed a penalty. For example, a hospital with a VBP adjustment factor of 0.9575 would be paid 95.75% of what Medicare usually reimburses for each service. It’s important to note that the VBP program is a mix of both withholding repayment and bonus (or penalty) and is required by law to be budget neutral.

Clinical Decision Support Products: Lippincott Advisor and Lippincott Procedures

Lippincott Procedures is a subscription-based online platform that provides nurses and hospital staff working at the point-of-care with 24/7 online access to over 1,700 step-by-step procedures updated with the most recent evidence-based practice. Content is organized into numerous categories that focus on ambulatory, critical care, emergency, pediatric, and long-term care nursing, as well as physical and respiratory therapy, among others. Video clips of procedure steps, images, checklists, and skills competency tests are included. Robust customization capabilities enable institutions to ensure their staff are following their approved procedural guidelines. Tablet and phone apps are also available for access.

Lippincott Advisor is a separate and distinct online point-of-care platform with access to evidence-based clinical decision support through more than 17,000 monographs and patient teaching handouts. Content is organized into numerous categories that cover diseases, diagnostic tests, treatments, patient teaching, care plans, cultural perspectives, drug information, and more. Tests are available on key topics to help reinforce staff education, along with corresponding platform assignment capabilities. Tablet and phone apps are also available for access. Electronic healthcare records (EHR) integration is also available.

Hospitals Included in the Dataset

Data was collected from all US-based hospitals with a CMS Certification Number (CCN) that participated in the VBP program. Selected hospitals had also purchased and made available to staff Lippincott Procedures and Lippincott Advisor for the full calendar years—from January 1 through December 31—of 2014 and 2015. The performance of these hospitals was then compared to that of the approximately 3,000 hospitals in the United States with a CCN and that had received a VBP Total Performance Score for the same time period.

Usage of either or both Lippincott Procedures or Lippincott Advisor for the full calendar year rose from 219 hospitals in 2013, to 387 hospitals in 2014, and to 606 hospitals in 2015. There were 41 hospitals that used both Lippincott Advisor and Lippincott Procedures during the full calendar years of 2014 and 2015. These 41 hospitals demonstrated a performance edge compared with the national average of hospitals participating in the VBP program. Their average number of Medicare cases is higher, and their Case Mix Index (CMI) is similar when compared to national averages. They represent 20 states from all regions of the country—from California and Montana to New Jersey and Connecticut—and different sizes and configurations. The institutions included in the 41 range from community-based clinics to hospitals serving a large geographic region to large university-based systems.

STUDY RESULTS

The 41 hospitals that used both Lippincott Advisor and Lippincott Procedures during the full calendar years of 2014 and 2015 achieved higher performance on important VBP measures that can directly affect their Medicare reimbursement payments and their overall bottom line.

The 41 hospitals identified at the beginning of this section achieved, on average, higher VBP Total Performance Scores than the national average. For example, the FY 2017 average TPS of the 41 hospitals was **40.1** vs. a national average TPS of **35.6**. In addition, using the rank ordering methodology, the study discovered that the 41 hospitals achieved an average ranking roughly **24.5%** higher in FY 2017 than hospitals in the study that did not use both Lippincott Procedures and Lippincott Advisor in 2014-2015 (this includes hospitals that may have used either product but not both). See figure 2.

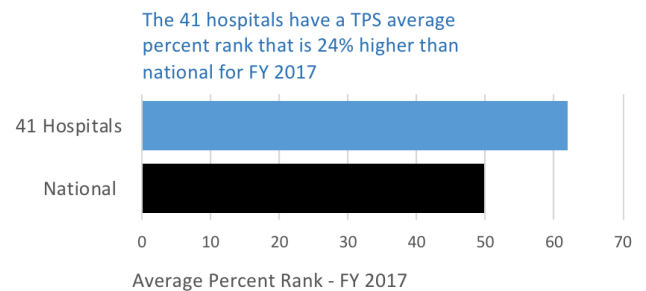


Figure 2: Average Percent TPS Rank of 41 Hospitals that Used Both Lippincott Procedures and Lippincott Solutions Compared with the National Hospital Average

Similarly, the average VBP adjustment factors for the 41 hospitals were higher than the national average during Fiscal Years 2015, 2016, and 2017. Specifically, they were assigned adjustment factors that averaged 1.002171, 1.003472, 1.004608 respectively, compared with the national averages of 1.001139, 1.002142, and 1.001845. In fact, as Figure 3 indicates, the 41 hospitals continued to increase their average VBP adjustment factor even when the national average went down between FY2016 and FY2017.

Efficiency Domain's Medicare Spending Per Beneficiary (MSPB)

Medicare Spending Per Beneficiary (MSPB) is used to score the VBP Efficiency Domain

and is applied to Medicare costs during the period that spans three days prior to and 30 days after hospitalization. As MSPB is the only measure included in the Efficiency Domain, it represents 25% of a hospital's VBP performance and Total Performance Score—and thus has more importance than any other single measure.

What is the Rockburn Institute?

Established in 1978 by the faculty and staff of The Johns Hopkins University School of Hygiene and Public Health, Rockburn Institute is a not-for-profit research and education group that provides quantitative support to hospitals and healthcare organizations. Some of the Institute's early studies concentrated on state databases, case mix, case mix severity measures, measuring the impact of peer review, and the cost of graduate medical education programs. Since 1990, Rockburn has supported integrated health systems programs in evidence-based medicine, value-based healthcare, and clinical integration. The lead researcher for the study of performance by hospitals using Lippincott Procedures and Lippincott Advisor was Dale N. Schumacher, MD, President of the Rockburn Institute. He has extensive experience in developing and implementing strategic quality plans for systems, measuring change in physician practice patterns after information feedback, and implementation of Medicare prospective payment risk adjusters. He has over 40 publications (15 peer-reviewed) in the areas of medical education, medical care, quality of care assessment, healthcare data analysis, and reliability of chart-review data. Co-lead researcher Fern Nerhood, MBA, MSW, and Director, Management Services and Senior Analyst for Rockburn Institute, works extensively with measurable data from CMS in evaluating hospital and provider performance. She helps hospitals and provider systems understand how their performance translates into scoring and the resulting financial impact of CMS measures. In fact, she has developed and manages an in-depth ROI model that analyzes the performance of all hospitals nationwide while also providing details on any individual hospital. Additional projects include analysis and training of healthcare corporations and industry professionals.

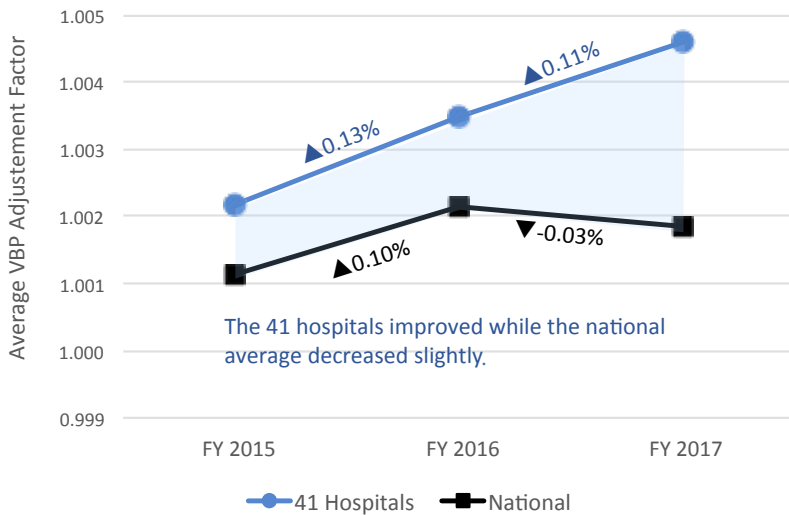


Figure 3: VBP Average Adjustment Factor of 41 Hospitals that Used both Lippincott Procedures and Advisor Compared with National Hospital Average

As Figure 4 demonstrates, the 41 hospitals performed better than the national average on the Efficiency Domain from Fiscal Years 2015-2017 (Calendar Years 2013-2015): 26.6 versus 20.1. In addition, they showed positive improvement during the three-year period, while the national average declined.

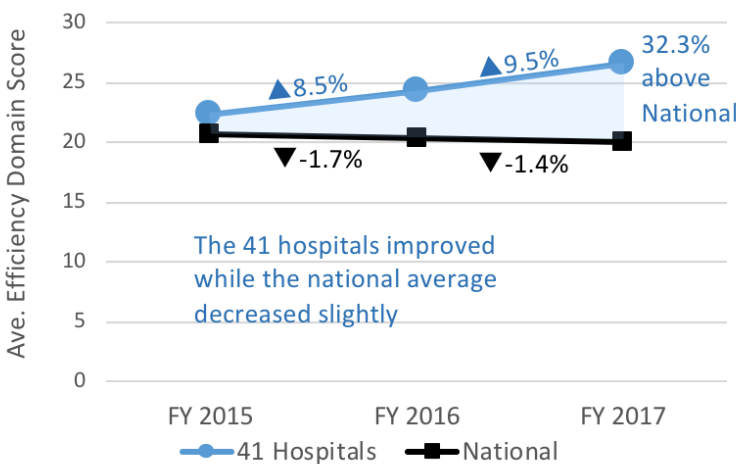


Figure 4: Medicare Spending Per Beneficiary (VBP Efficiency Domain Score) of the 41 Hospitals that Used Both Lippincott Procedures and Lippincott Advisor Compared with the National Hospital Average

CONCLUSION

With the implementation of its Hospital Value-Based Purchasing program, CMS has incentivized roughly 3,000 hospitals, clinics, and healthcare organizations that receive Medicare reimbursements for inpatient stays to focus on delivering high-quality patient care rather than assigning a high volume of procedures.

Hospitals that purchased and made available to their clinical staff the Wolters Kluwer Lippincott Procedures and Lippincott Advisor point-of-care tools over a two-year period achieved a performance edge over the national average on multiple VBP domains—including the Efficiency Domain, which is driven by MSPB performance—as well as on their overall Total Performance Score and adjustment factor. This demonstrates that, given the right informational tools, institutions can improve their ability to balance cost reduction and a favorable return on investment (ROI) with positive patient outcomes and a higher quality of care. These results also suggest a close relationship between clinician's, their ability to gain access to evidence-based information, and overall hospital performance improvement.

GLOSSARY OF TERMS

Centers for Medicare & Medicaid Services (CMS)

The agency that administers Medicare, Medicaid, the Children's Health Insurance Program, and the Health Insurance Marketplace for the Department of Health and Human Services.

CMS Certification Number (CCN)

A hospital's identification number, linked to its Medicare provider agreement and used for CMS certification. Multiple hospitals may be joined under the same CCN because of mergers and expansions. In some cases, hospitals that have merged into the same parent company still use distinct CCNs. Some healthcare facilities, including hospitals seeking to participate in the Medicare program, are required not only to satisfactorily complete the Medicare enrollment application but also to be certified as meeting the Medicare health and safety standards.

Hospital Value-Based Purchasing (VBP) Program

Established in 2012 as part of the Affordable Care Act, this CMS initiative rewards eligible hospitals for delivering inpatient acute care services based on the quality of care they deliver, not on the volume of services they provide. Specifically, CMS withholds a portion of a hospital's Medicare reimbursement that can then be earned back by performing well on quality measures.

VBP Total Performance Score (TPS)

The sum of all scores on all measures in all Domains of the Value-Based Purchasing model, factoring in Domain weighting. The TPS is translated into an incentive payment that makes a portion of the base diagnosis-related group (DRG) payment contingent on performance.

Medicare Spending Per Beneficiary (MSPB)

The measure included in the Efficiency Domain of the VBP model. MSPB aggregates Case Mix-adjusted Medicare costs during a hospitalization spanning the period beginning three days prior to 30 days post-acute care.

Case Mix Index (CMI) Scores

Hospitals classify patients that have the same condition, complexity, and needs into Diagnosis Related Groups, which are assigned a value based on the amount of resources required to treat patients in that group, compared to all the other diagnosis-related groups within the system. The hospital's overall CMI is the average DRG value for its entire Medicare volume. This indicates the relative severity of the patient population and reflects the diversity of patients, the complexity of their conditions, and the resource needs.

Lippincott Advisor

Software designed for use at the point-of-care that provides 24/7 online access to evidence-based clinical decision support through more than 17,000 monographs that cover diseases, diagnostic tests, treatments, patient teaching, sentinel events, cultural perspectives, and drug information.

Lippincott Procedures

Provides real-time access to step-by-step, evidence-based procedure guidance at the point of care. Covers over 1,700 procedures and skills in a wide variety of specialties settings.