

# DATA ON THE EDGE

## QUALITY OUTCOMES AS A DRIVER FOR SERVICE OPTIMIZATION

Health systems looking to improve quality, streamline operations, manage cost and meet patient needs face many complex and challenging decisions on how to accomplish these goals. One strategy that must be considered is the consolidation or distribution of services across the enterprise. With financial pressures, capacity-constrained tertiary-quaternary facilities and workforce challenges, the incentive to design and implement a service distribution strategy has never been greater. Integrated data analytics are instrumental in driving the service distribution planning process.

Powered by Vizient® Data and Digital Analytics

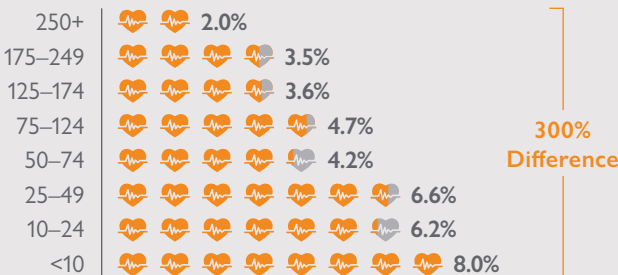
To learn more, check out Vizient data resources on the [last page](#).

Often, data to drive service distribution focus on current utilization, future projected demand, programmatic capabilities across the enterprise and the physician platform to support service delivery. An often-overlooked data element critical to these planning discussions is data that evaluate the relationship between programmatic volumes and quality indicators. Assessing the volume-quality relationship is a key input for system-level decisions regarding the feasibility and opportunity to centralize or decentralize cases. Sg2 recently evaluated the relationship between volume and quality outcomes—mortality and average length of stay—for two cardiovascular procedures. The analysis illustrated two different stories: in one story there is a strong relationship between the number of cases performed and quality outcomes, and in the second there is not a relationship between the two. Identifying in which case a relationship exists is an important step in optimizing capacity and patient outcomes across the system footprint. Taking a data-driven approach will help systems navigate politically challenging conversations and ensure that decisions made will benefit all stakeholders: patients, providers and payers.

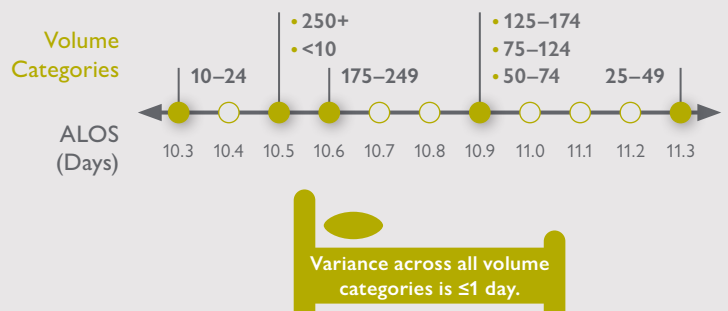
### Identify Cases Where There Is a Relationship; Determine Opportunity to Consolidate

#### Volume to Outcomes Comparison—National Benchmarks, CY 2023, Cardiac Valve and Other Major Cardiothoracic Procedures Without Cardiac Catheterization With Major Complication or Comorbidity (MS-DRG 219)

IN-HOSPITAL MORTALITY RATE BY HOSPITAL VOLUME CATEGORY (IN %)



ALOS BY HOSPITAL VOLUME CATEGORY (IN DAYS)



Note: Percentages may not precisely reflect the absolute figures due to rounding.

Source: Vizient® Clinical Data Base/Resource Manager™. Irving, TX: Vizient, Inc.; 2024. <https://www.vizientinc.com>

One example where case volume is shown to have an impact on quality outcomes is MS-DRG 219. Using the Vizient Clinical Data Base to evaluate the relationship between volume and quality outcomes for MS-DRG 219, Cardiac Valve and Other Major Cardiothoracic Procedures Without Cardiac Catheterization With Major Complication or Comorbidity, shows a nearly four-fold increase in mortality between low-volume and high-volume centers. (Data from the Vizient Clinical Data Base is used with permission of Vizient, Inc. All rights reserved.) Specifically, analysis of in-hospital mortality and ALOS for MS-DRG 219 illustrates an 8.0% in-hospital mortality rate for hospitals with fewer than 10 cases per year vs a 2.0% in-hospital mortality rate for hospitals with over 250 cases. Although there are no differences across the volume categories for ALOS, institution-specific cost and margin data should also be examined to assess the financial impact of performing procedures at high- vs low-volume centers.

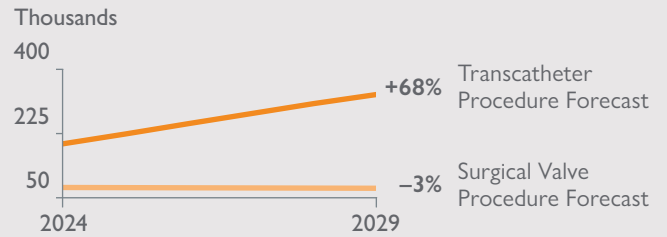
THE NEXT STEP

Assess Whether Moving Patients to Another System Facility Is Realistic in Each Case

Many CV procedures, including MS-DRG 219, are scheduled procedures and do not originate in the emergency department. Patients needing this procedure are typically being managed longitudinally and have upstream care needs, including echocardiograms to assess valve deterioration and patient risk assessments being conducted and measured during their care journey. The longitudinal nature of this care pathway allows time to plan for centralization of the procedure and ensure patients are directed to the preferred location in a system to strategically optimize outcomes. Capacity will be a key element to consider as surgical and transcatheter heart valve procedures are forecasted to grow nearly 48% nationally in the next five years. Given the high forecasted growth, consolidating cases at hospitals where the number of cases performed is correlated with low mortality rate and lower LOS should be part of the service distribution evaluation.

Inpatient Heart Valve Procedure Forecast  
US Market, 2024–2029

5-Year Total Inpatient Growth: 48%

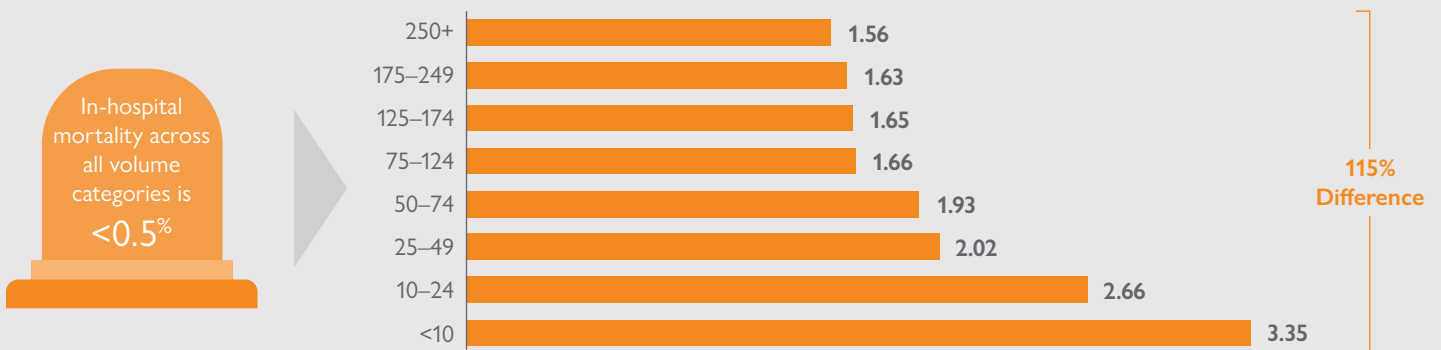


Sources: Impact of Change®, 2024; HCUP National Inpatient Sample (NIS), Healthcare Cost and Utilization Project (HCUP) 2019, Agency for Healthcare Research and Quality, Rockville, MD; Claritas Pop-Facts®, 2024; Sg2 Analysis, 2024.

Distribute Cases Where a Volume-Quality Relationship Does Not Exist to Maximize Acute Capacity

Volume to Outcomes Comparison—National Benchmarks, Percutaneous Intracardiac Procedures Without Major Complication or Comorbidity (MS-DRG 274)

ALOS BY HOSPITAL VOLUME CATEGORY (IN DAYS)



Note: Percentages may not precisely reflect the absolute figures due to rounding

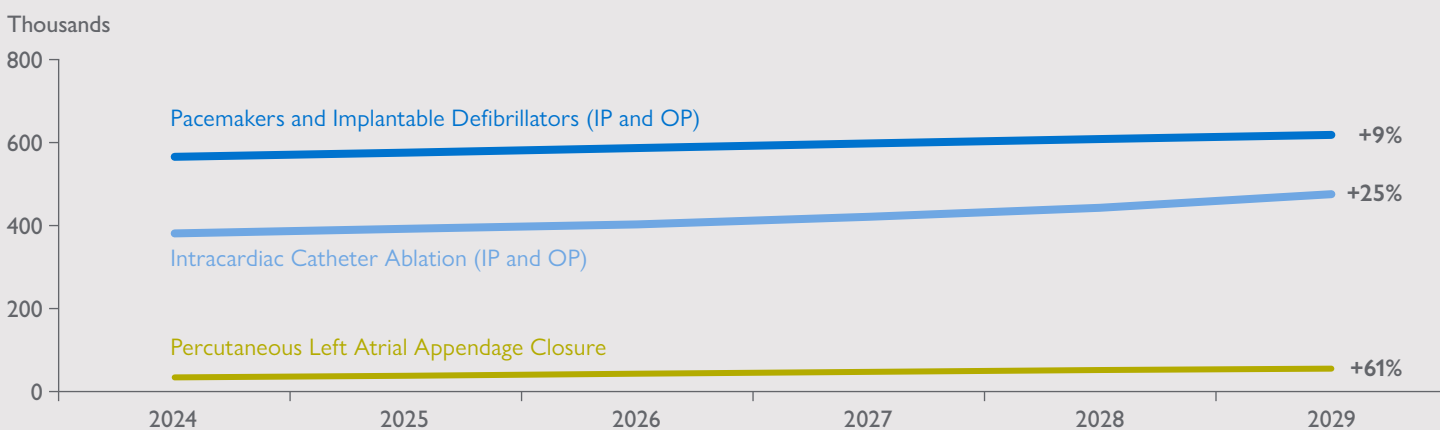
Source: Vizient® Clinical Data Base/Resource Manager™. Irving, TX: Vizient, Inc.; 2024. <https://www.vizientinc.com>

In contrast to the first example, MS-DRG 274, used for intracardiac catheter ablations for heart rhythm abnormalities and percutaneous left atrial appendage occlusion (LAAO) device placement, is an example of a procedure where the relationship between volume and quality is less clear; therefore, there is an opportunity to distribute cases across the system. According to the Vizient Clinical Data Base, low-volume centers perform similarly to high-volume centers, with in-hospital mortality rates below 0.5% across all volume categories. While many of these procedures may require or benefit from surgical backup resources, enabling operational efficiency and improved throughput may require strategically locating this service at select sites across the system. Managing and planning for capacity expansion for electrophysiology (EP) procedures will be necessary for many systems as these procedures are forecasted to increase by nearly 17% nationally in the next five years, with ablation procedures growing 25% and LAAO growing 61%, according to Sg2's Impact of Change® Forecast.

### EP Procedure Forecast, IP and OP

US Market, 2024–2029

5-Year Total Inpatient Growth: 17%



Sources: Impact of Change®, 2024; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2019. Agency for Healthcare Research and Quality, Rockville, MD; Proprietary Sg2 All-Payer Claims Data Set, 2022; The following 2022 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2024; Sg2 Analysis, 2024.

## Why It Matters

Analysis of the volume-quality relationship at the MS-DRG level provides a data-driven foundation to navigate the difficult decisions in planning for service distribution.

**Service distribution, when executed well, has the potential to improve quality of care, lower cost, reduce duplication of services and strengthen your market position.**

- Assess the relationship between volume and quality, as well as future volume growth and the role of each acute facility within the system footprint, to determine the optimal location for each clinical program and procedure. Pay special attention to opportunities to fully utilize your existing footprint.
- For single hospital organizations, whether rural or community-based, consider partnerships with academic medical centers/tertiary hospitals to ensure high-quality outcomes where case volume is low and there is a significant volume-quality relationship.
- Assess financial impact for each distribution scenario. Weigh reimbursement differentials, programmatic growth and expansion opportunities. Determine the investment required to successfully consolidate or distribute cases, including infrastructure needs at the impacted facilities.
- Review volume and quality relationship for procedures that are appropriate to shift outside of the hospital. Operational efficiencies and capacity can be achieved by shifting low-acuity procedures to ambulatory settings or other facilities.

**Clinically using quality data to drive distribution decision-making will improve the value of care provided.**

- Consider the admission source in evaluating decisions to centralize programs and cases. For scheduled procedures, take action to schedule and locate cases across your system in alignment with favorable volume-quality outcomes. For emergent cases, ie, those admitted through the emergency department, a distributed approach to clinical resources and skill sets across the system may be required.
- Make decisions to centralize or distribute on a service, procedure and/or MS-DRG basis.
- Assess the impact on access, patient willingness to travel and physician impact based on service distribution approaches.

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# POWERED BY VIZIENT DATA AND DIGITAL ANALYTICS

This report's analysis leverages the following proprietary data and analytics assets.

The **Vizient Clinical Data Base** is the definitive health care analytics platform for performance improvement. The CDB provides high-quality, accurate and transparent data on patient outcomes—such as mortality, length of stay, complication and readmission rates, and hospital-acquired conditions—that enable hospitals to benchmark against peers; identify, accelerate and sustain improvements; reduce variation; and expedite data collection to fulfill agency reporting requirements. Clinical benchmarking tools such as dashboards, simulation calculators, and templated and customizable reports enable you to quickly identify improvement opportunities and their potential impact.

**Sg2's Impact of Change**<sup>®</sup> model forecasts demand for health care services over the next decade, examining the cumulative effects and interdependencies of key impact factors driving change in utilization. Using both disease-based and DRG-based analyses, the forecast provides a comprehensive picture of how patients will access inpatient and outpatient services along the continuum of care.

**Sg2 Intelligence** is a diverse team of subject matter experts and thought leaders who represent specialties ranging from clinical service lines to enterprise strategy. The team develops strategy-specific content in the form of editorial reports, including the *Data on the Edge* series, and perspective-based analytics, such as the Impact of Change forecast.