



WHITE PAPER

# US Surgical Volumes in the Post-Pandemic Landscape

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Before the COVID-19 pandemic, the global medtech space enjoyed a position of robust and steady growth, outperforming the market over other areas of healthcare and biopharma. Driven by shifting demographics and continued innovation, predictions for the \$500B+ market forecast ~5% growth, with the US representing nearly half of total volume.

However, the pandemic has challenged traditional dynamics within healthcare and medtech, resulting in volatile procedure volumes, disrupted supply chains, and strained system capacity. Leaders in medicine, industry, and government have taken steps to respond, strengthening the healthcare apparatus by building new capabilities and capacity across the system.

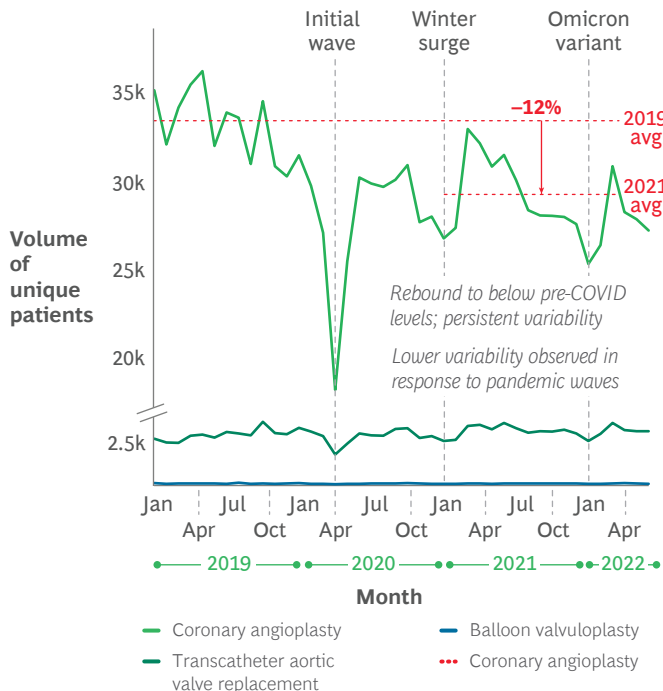
As a key driver of growth and innovation in medtech, surgical volumes are critical to consider in setting near-term and mid-term post-pandemic strategies. But for many business leaders, understanding procedure dynamics within surgery has proved challenging and opaque. To clarify the state-of-the-field and offer insights for medtech players and providers, we conducted a survey of 250 US-based surgeons and interventionalists across six specialty areas to understand shifts in practice patterns today; additionally, we evaluated broader volume trends from claims data for index procedures within each of the six specialty areas.

## Visit and procedure volumes are down, but may be returning to pre-pandemic trajectories

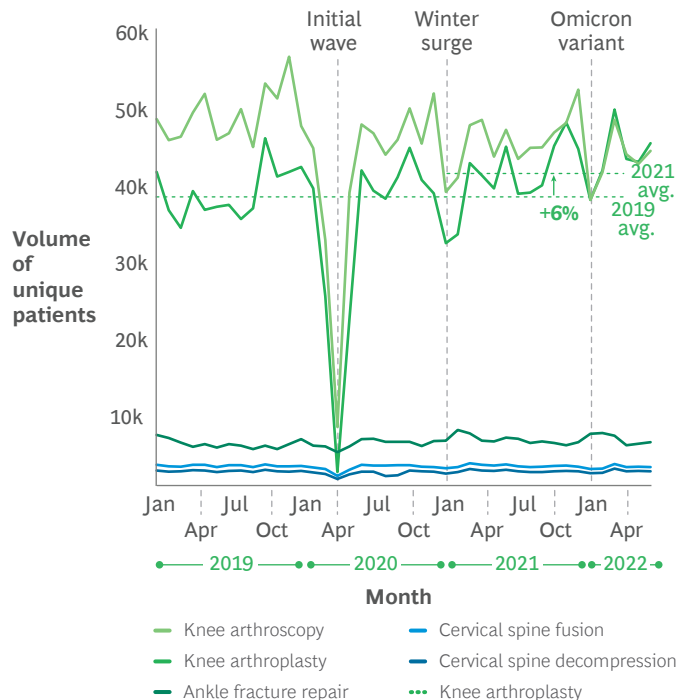
Following initial and subsequent pandemic surges, there is a sense among many medtech players and clinicians that volumes have begun to normalize. Nonetheless, there remains uncertainty around current market volumes and future growth potential in the post-pandemic world. Specialties have deaveraged in the level of their volume and the shape of their recovery (See Exhibit 1), with many medtech companies debating what to expect and how to respond. Has surgical volume returned, and can we predict what lies on the horizon? A refreshed perspective is critical for medtech players to position themselves for durable competitive advantage.

# Exhibit 1 - Monthly procedure claims volumes across specialties with variable response to COVID surges

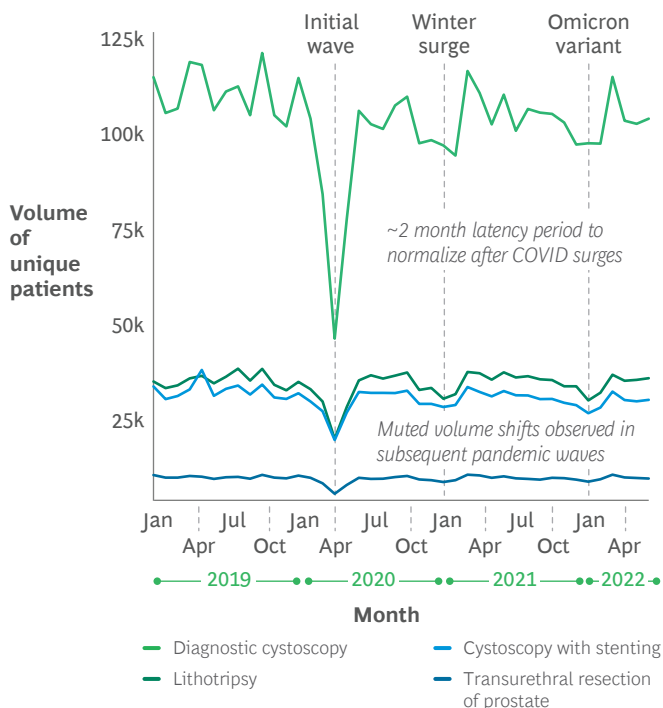
Interventional cardiology procedure claims (2019-2022)



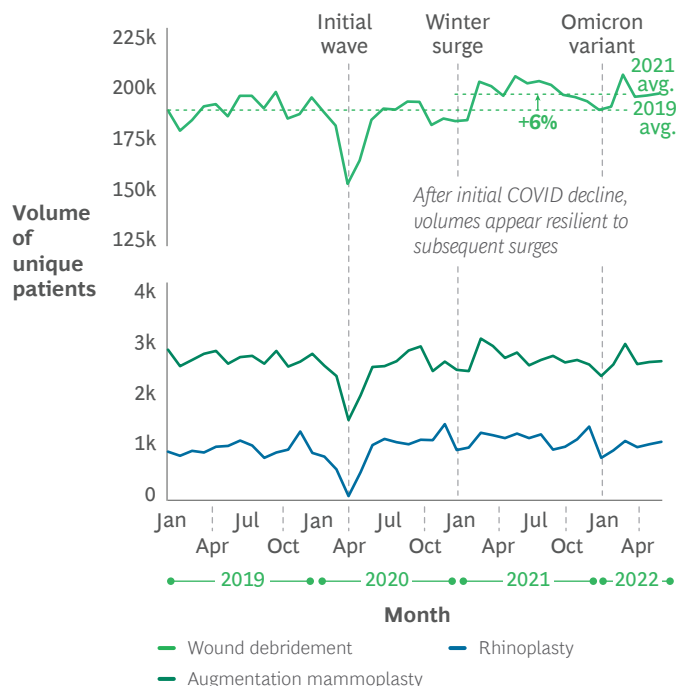
Orthopedic surgery procedure claims (2019-2022)



Urology procedure claims (2019-2022)



Plastic surgery procedure claims (2019-2022)



Source: Komodo claims database (November 2022)

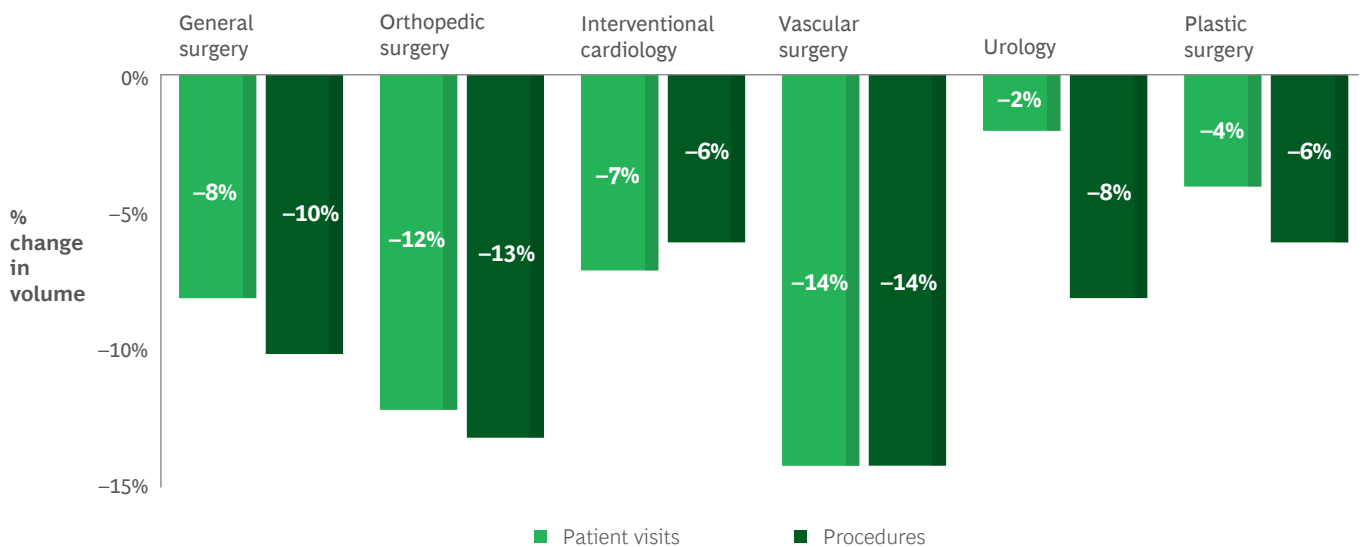
The pandemic dramatically impacted visit and procedure volumes across the US as patients, doctors, and hospitals grappled with safety and logistical challenges. Among surveyed physicians, many reported appreciable declines in both patient visits and procedure volumes (See Exhibit 2) since the start of 2020. For example, general surgeons saw an 8% decrease in visits and 10% decrease in surgeries. Recent claims data supports this trend (e.g., vascular surgery showing a 15% decrease in varicose vein ablation volumes between 2019 and 2020).

Physicians consistently cited capacity issues, including staffing shortages and lack of hospital system bandwidth, as key drivers for the pandemic downturn. This was most evident for procedure volumes (See Exhibit 3), with other contributory factors being secondary. Many clinicians also attributed decline in patient visit volumes to upstream effects, including changing referral patterns from primary care providers and patient preferences. Among certain specialists, including ~50% of interventional cardiologists and ~40% of vascular surgeons, these upstream effects were cited as key factors. Interestingly, COVID transmission concerns were typically ranked lower, with only ~30% of total surveyed physicians identifying it as a top 3 driver. About 47% of orthopedic surgeons, however, did highlight it as relevant to their practice volumes.

Despite the upfront impact of the pandemic, there is optimism and momentum for near-term recovery. Eighty-six percent of physicians reported increased or stable visit and procedure volumes within their practice over the past year. And across specialties, respondents expected normalization or growth of volumes in the next two to three years.

## Exhibit 2 - Physician-reported decline in patient visits and procedures since the COVID pandemic

Patient visit and procedure volume shifts since the COVID pandemic amongst surveyed clinicians



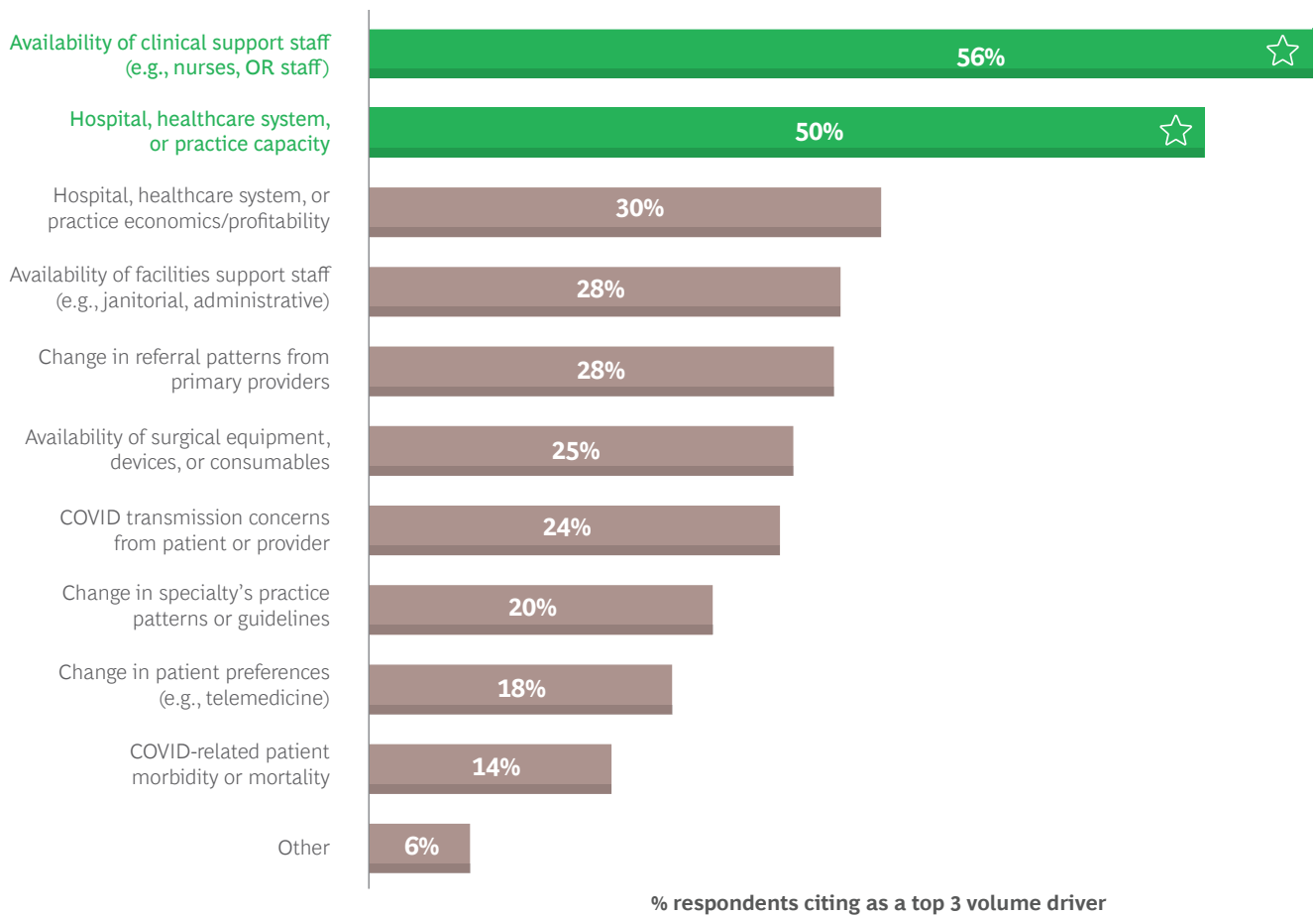
Source: BCG US Provider Volumes Survey, November 2022 (N=250)



**Despite the upfront impact of the pandemic, there is optimism and momentum for near term recovery... And across specialties, respondents expected normalization or growth of volumes in the next two to three years.**

## Exhibit 3 - Shortfalls in staffing and system capacity were cited as key drivers of decreased volume

Primary drivers for procedure volume shifts during the pandemic amongst surveyed clinicians

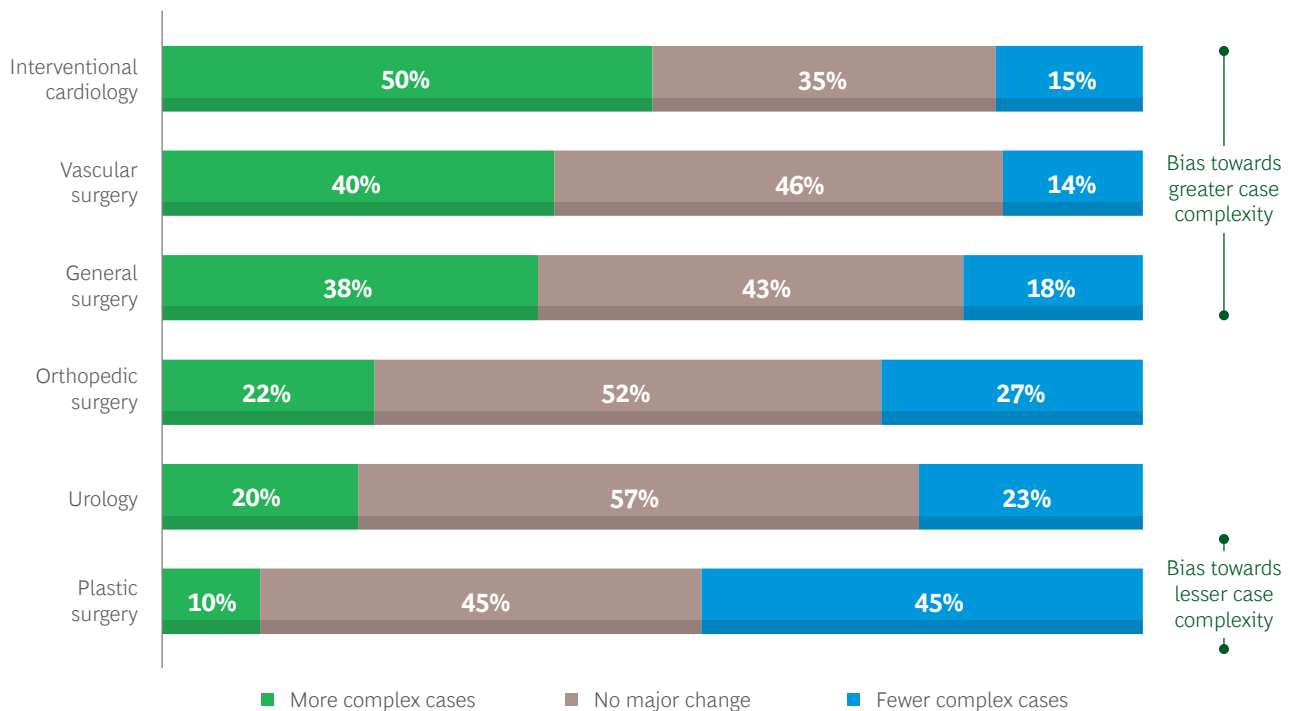


Source: BCG US Provider Volumes Survey, November 2022 (N=250)

Other recent trends include a fairly stable ratio of inpatient vs. outpatient procedure mix (outside of orthopedic surgeons reporting ~8% decline in inpatient case ratio) and fewer elective procedures occurring within certain specialties (e.g., ~5% decline in elective case ratio for orthopedic surgeons and ~8% decline in elective case ratio for vascular surgeons). Clinicians across specialties uniformly saw increasing usage of telemedicine to 10–20% of total patient visits, with predicted durability over the next two to three years. Case complexity diverged across specialties, with some surgeons taking on more complex surgeries while others remained more conservative. (See Exhibit 4).

## Exhibit 4 - Many practitioners have observed a shift in their surgical case complexity over the past two years

Post-pandemic case complexity amongst surveyed clinicians



Source: BCG US Provider Volumes Survey, November 2022 (N=250)

### Deaveraging of procedure volume and growth dynamics within specialties

Recent claims data supports early signs of recovery toward pre-pandemic levels, despite slowed near-term growth. While clinicians felt COVID's impact across the board, different archetypes of procedures within a specific specialty often varied in behavior.

Unsurprisingly, more urgent or non-elective cases were less affected by COVID surges than other procedures. For example, ankle fracture repair claims continued to grow 2% to 8% through 2020 and 2021 despite pandemic influence. Similarly, cervical spine decompressions and fusions proved robust, with limited fluctuation in month-to-month volumes. (See Exhibit 1).

On the other hand, less urgent or semi-elective procedure volumes responded with more marked shifts coincident with pandemic waves before returning to historical baselines. Among general surgeons, inguinal hernia repair claims dropped ~15% in 2020 and remained below pre-pandemic trajectories in 2021. Across specialties and index procedures that we examined, there was limited evidence for an incremental "catch-up bolus" of cases following COVID surges. Despite a nearly 50% reduction in claims for select laparoscopic procedures (e.g., partial colectomy) in April of 2020, volumes eventually returned to baseline without a compensatory increase. The absence of clear catch-up volume may be due to capped system bandwidth to accommodate unmet need. It remains to be seen whether this category represents true lost volume or simply deferred volume until conditions and capacity improve.

Many purely elective or cosmetic-only procedures showed surprising resilience relative to other procedures. After an initial decline and rebound in April of 2020, claims for rhinoplasty and breast augmentation exceeded pre-pandemic levels and held strong during subsequent winter COVID waves.

Interestingly, a consistent recovery latency was observed for most index procedures after surge-related declines. With minor exception across specialties and procedures, claims volumes typically returned to pre-surge baselines within two to three months. (See Exhibit 1). This trend held for more elective procedures (e.g., varicose vein ablation), as well as less elective procedures (e.g., appendectomy), despite the former showing greater decline in response to pandemic surges. Perhaps reflective of improved healthcare system resiliency and growing comfort with COVID among providers and patients, surge-related volume shifts were more modest in subsequent waves. For instance, varicose vein ablation claims volumes declined ~80% in April 2020 (initial COVID surge), but only ~25% in January 2021 (winter surge) and January 2022 (Omicron variant surge).

It is worth noting that not all medtech spaces have seen a return to normalcy. A key area where a new “post-COVID baseline” may be emerging is in cardiovascular-adjacent specialties. For cardiothoracic surgeons, coronary artery bypass grafts are down ~14% when comparing pre-pandemic 2019 vs. post-pandemic 2021 monthly claims volumes. Similarly for interventional cardiologists, coronary angioplasty claims volumes fell ~12% when evaluated over the same time period. The etiology is likely multifactorial, though interplay between the patient population and COVID cardiopulmonary comorbidity is likely involved.

### **Key considerations for medtech players to win in the post-pandemic marketplace**

- Prioritize supply chain continuity in the two to three months after COVID surges, but don't overreact.

Historical claims data suggests that while elective procedure volumes decline in the wake of COVID surges, they typically rebound within two months without a clear catch-up bolus of cases. Though this volume may return in the coming years, there exists a lack of compelling evidence over the time horizon examined. Medtech players can therefore focus on building resilience without overreacting by maintaining supply chain continuity to be ready for a rebound, while avoiding overproduction in the hopes of a potential spike. Of course, certain exceptions remain (e.g., knee arthroscopy with short-term growth, perhaps due to backlog of deferred cases), so manufacturers must remain vigilant and continue surveillance. As the US braces for future COVID waves and prepares more robust pandemic response protocols, we expect surge-related volume declines may diminish.

- Partner with clients and providers to overcome talent and staffing shortages.

In the near-term, shortfalls in staffing and practice capacity will likely continue to be key determinants of surgical volume. While these operational issues may be outside the core remit of the medtech space, companies have an opportunity to work with clients in meeting these challenges. Delivering solutions to improve clinical workflows, optimize procedures, and reduce labor requirements through inspired product design and deployment facilitates “doing more with less” in a resource-constrained environment. As providers continue to turn to alternative models like telemedicine and remote care to improve bandwidth, enhancing how medtech thinks about supporting and empowering physicians is paramount.



- Engage and activate patients to bring them back into the clinic.

With changing patient preferences and behaviors in the post-pandemic landscape, it's clear that medtech players and providers will need to meet patients in new ways. While certain specialties (e.g., orthopedic or plastic surgery) are well-versed in identifying and activating patients in the community, there remains space in other areas (e.g., cardiology) to build muscle in moving patients down the care continuum. As the medical landscape continues to evolve, medtech companies can capitalize by joining clinicians in patient outreach and education to serve unmet need and capture the full spectrum of opportunity. Proactive engagement will be particularly critical as baselines settle in the “new normal” and set expectations on both sides of the table for the years to come.

## **Rising to the occasion in a post-pandemic world**

Given COVID-related uncertainty and complexity facing the US healthcare system, medtech players have been understandably cautious in setting their near-term strategic direction. Recent claims data and physician reports suggest that while patient visit and procedure volumes are down, there is reason to be optimistic about recovery. Focusing on actionable, no-regrets moves over the coming two to three years—as well as gaining a deeper understanding of specialty-specific dynamics—can position medtech companies to weather short-term turbulence and establish the foundation for lasting competitive advantage.

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## Acknowledgments

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