

The Future of Spine Care

Landscape and Key Trends

Kate Zentner

Sr Director, Intelligence, Sg2

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Spine Landscape



Evolve Your System of Care



1. Prepare for rising patient acuity



2. Anticipate site of care shifts



3. Reactivate upstream channel strategy



4. Recruit, retain and reimagine workforce



5. Demonstrate Value

Innovation in Spine Takes Many Forms



OVERVIEW

- Continued competition
- Increasing precision, decreasing invasiveness
- Budget constraints, heightened scrutiny around adoption
- For health systems and physicians, **some innovations will be “baked in”—others will require programmatic or care delivery change.**

Selected Examples

Diagnosis

- Computational imaging techniques
- Portable technologies (eg, MRI, CT)
 - Lower cost
 - Broader accessibility
 - Extend workforce; reduce training burden
- Enhanced accessibility

Treatment:

- Increasing precision, decreasing invasiveness
- AI to inform treatment decisions (eg, patient selection, outcome prediction in deformity)
- Robotics and navigation
- Role of VR/AR in planning and execution

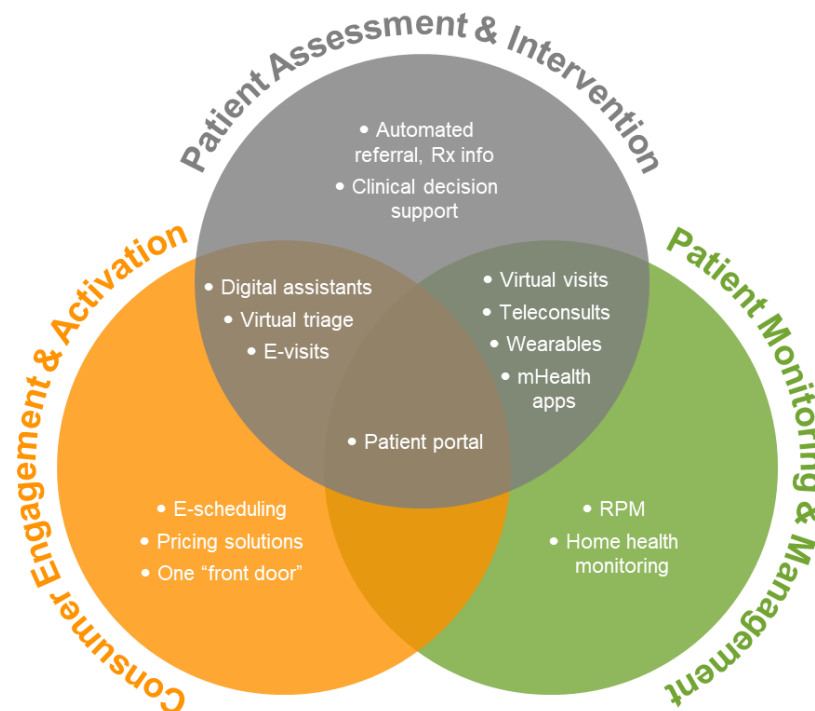
Care Delivery:

- Reimagined System of CARE
- Blurring roles
- Nontraditional partnerships, new collaborators and competitors
- Evolving workforce and training needs

Consider the Role of Digital Health to Support a Range of Strategic Imperatives

STRATEGIC IMPERATIVES

- Improve access to care.
 - Increase transparency for patients.
 - Grow share of care.
-
- Streamline care delivery.
 - Expand access channels.
 - Drive cost reduction, efficiency and increased provider capacity.
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- Support ongoing condition management.
 - Optimize postdischarge outcomes.
 - Manage overall cost of care.





SELECTED SPINE USE CASES

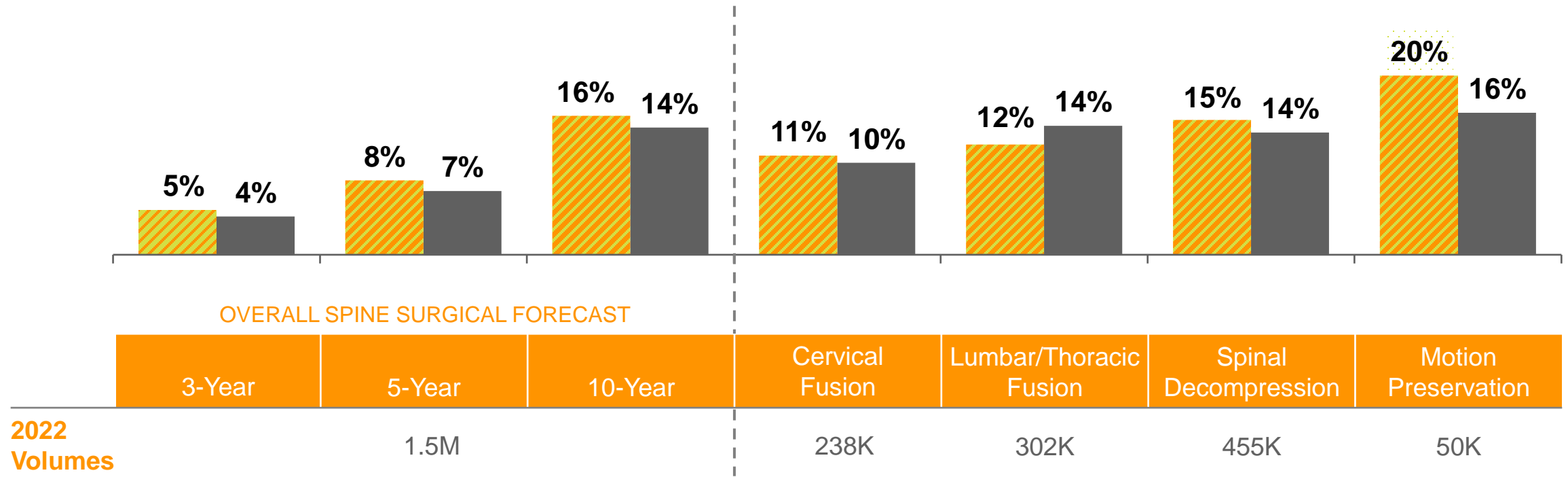
- **Virtual Rehab** platforms supporting post-surgical recovery and PRO collection
- **Supporting community-based** physicians (chronic pain)
- **Second opinion** virtual visits



10-Year Spine Surgical Procedures Forecast

Inpatient/Outpatient Select Spine Surgical Procedures Forecast US Market, 2022–2032

 Sg2 IP/OP Forecast
 Population-Based Forecast

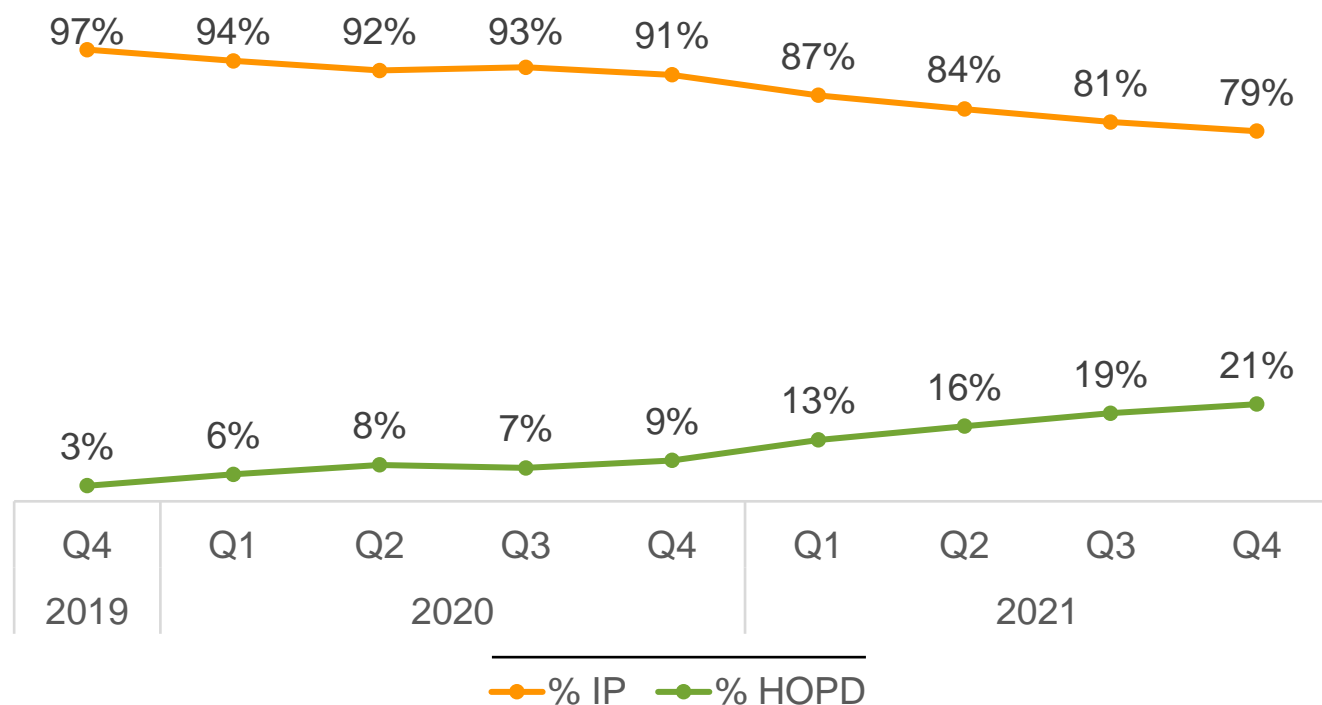


Note: Analysis excludes 0–17 age group and includes the spine service line only. Overall spine surgical forecast includes IP major therapeutic and OP major procedures groups. **Sources:** Impact of Change®, 2022; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2019. Agency for Healthcare Research and Quality, Rockville, MD; Proprietary Sg2 All-Payer Claims Data Set, 2019; IQVIA; The following 2019 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2022; Sg2 Analysis, 2022.



Spine Surgery Shifts Outpatient Amid Payment and Policy Change and Pandemic

Lumbar/Thoracic Spinal Fusion, Q4 2019–Q4 2021 Strata Decision Technology



DRIVERS

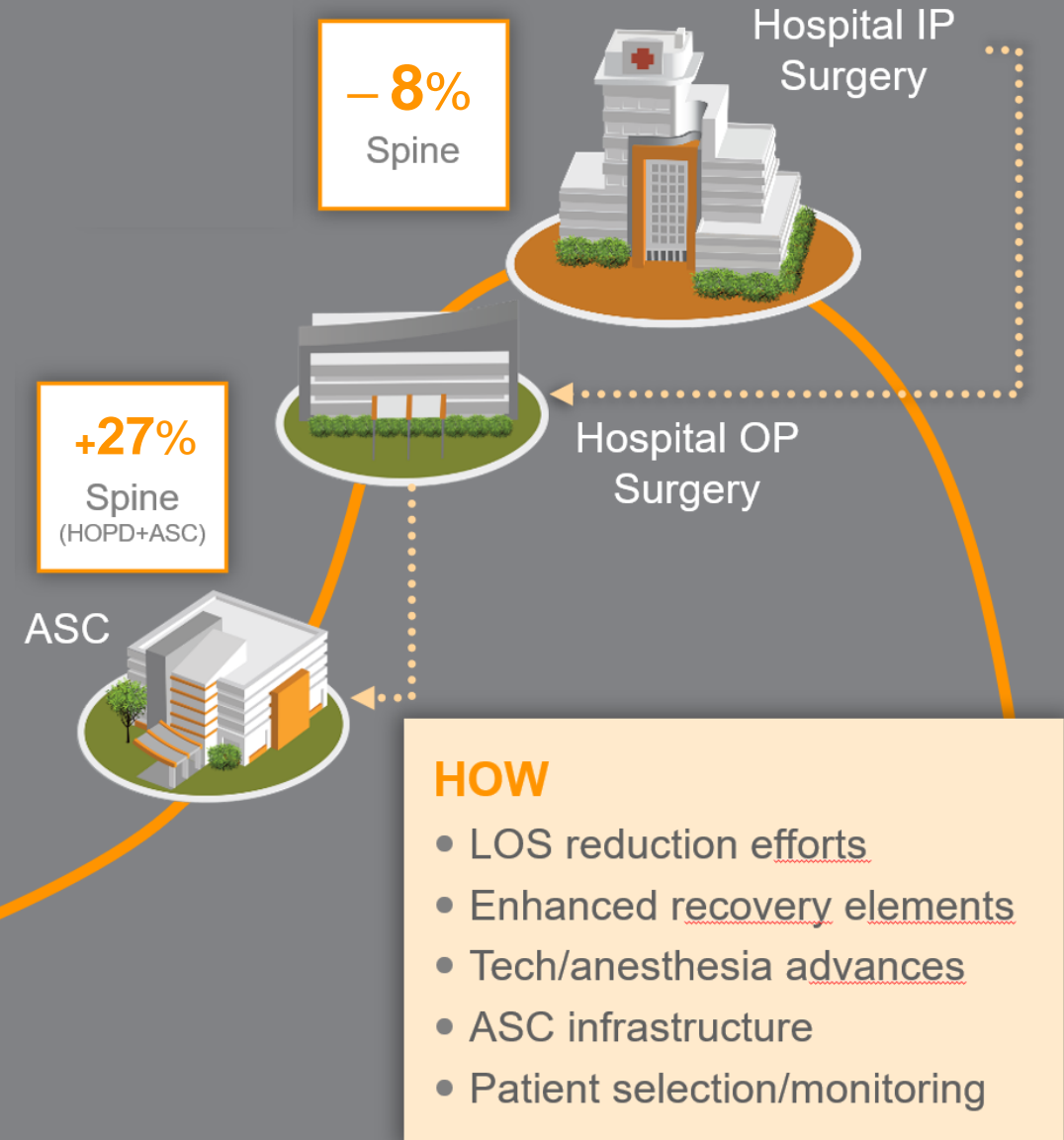
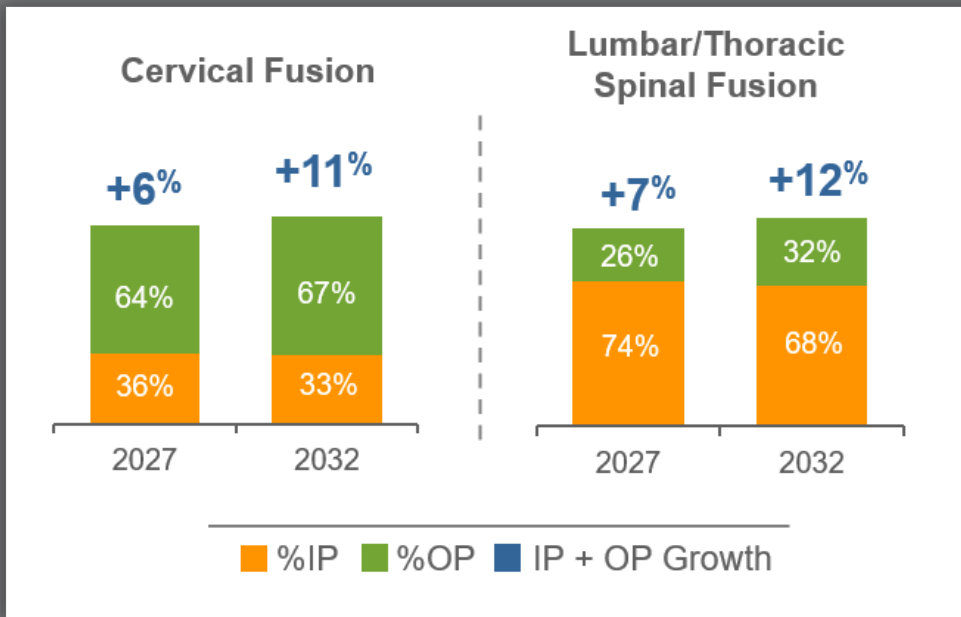
- Removed from CMS Inpatient Only list (2020–2021)
- LOS reduction efforts
- Enhanced recovery elements (Enhanced Recovery After Surgery [ERAS])
- Tech/anesthesia advances
- Patient selection/monitoring

Spine Surgery Forecast

Policy Changes, COVID-19 Pandemic, and Economic Pressures Accelerate HOPD/ASC Shift

Sg2 10-Year Growth Projections

US Market, 2022–2032

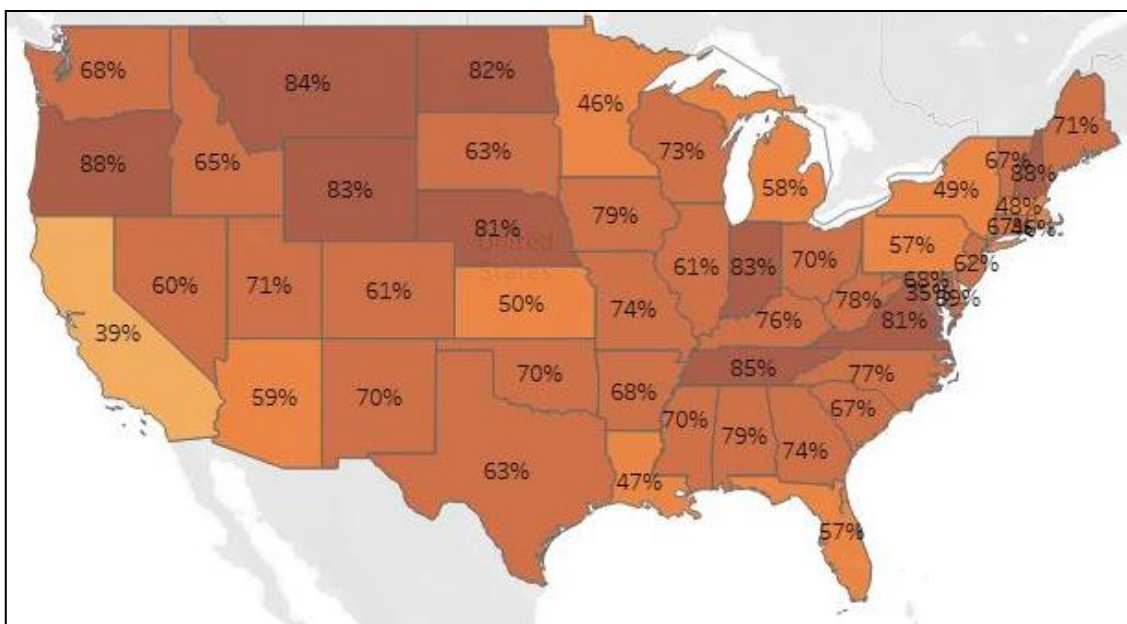


Note: Analysis excludes 0–17 age group. Spine includes spine service line, IP and OP major therapeutic procedures groups only. **Sources:** Impact of Change®, 2022; Proprietary Sg2 All-Payer Claims Data Set, 2019; The following 2019 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2022; Sg2 Analysis, 2022.

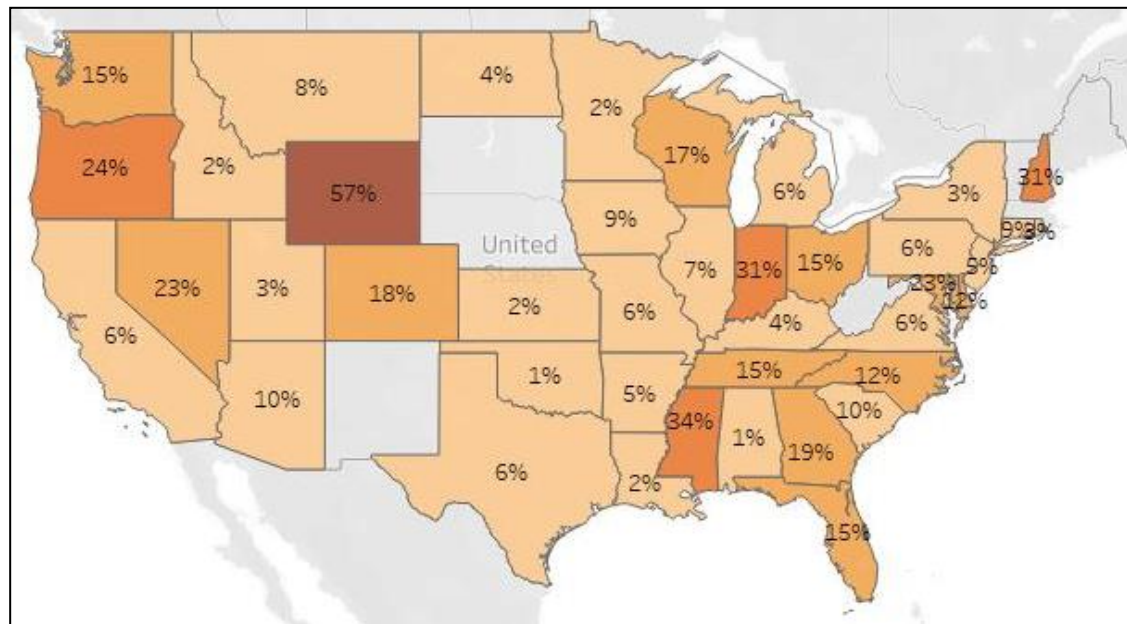
Shift Potential Varies by Procedure and Market

Cervical Fusion Commercial Snapshot: Some Markets Approach OP Shift Ceiling While ASC Shift Remains Limited and Varies Across Markets

**Cervical Fusion %OP,
Commercial Claims, 2021 Q1-Q3**



**Cervical Fusion %ASC,
Commercial Claims, 2021 Q1-Q3**



Notes: Analysis excludes 0-17 age group and includes commercial claims only. Cervical Fusion includes cervical spinal fusion and Degenerative Spine and Disc Injury CARE Family only. %OP includes hospital outpatient department and ambulatory surgery centers. %ASC includes ambulatory surgery centers only. **Sources:** Proprietary Sg2 All-Payer Claims Data Set; IQVIA; Sg2 Analysis, 2022.



Know Your Ambulatory Strategy, Know Your Market

CONSIDERATIONS



REGULATORY—CON, credentialing and certifications



CLINICAL—Physician comfort, workforce, clinical innovation and technology



STRATEGIC—Physician alignment, hospital capacity and efficiency, consumerism



FINANCIAL—Volume, reimbursement, construction and plant considerations, supply chain

Navigating Site of Care Shifts



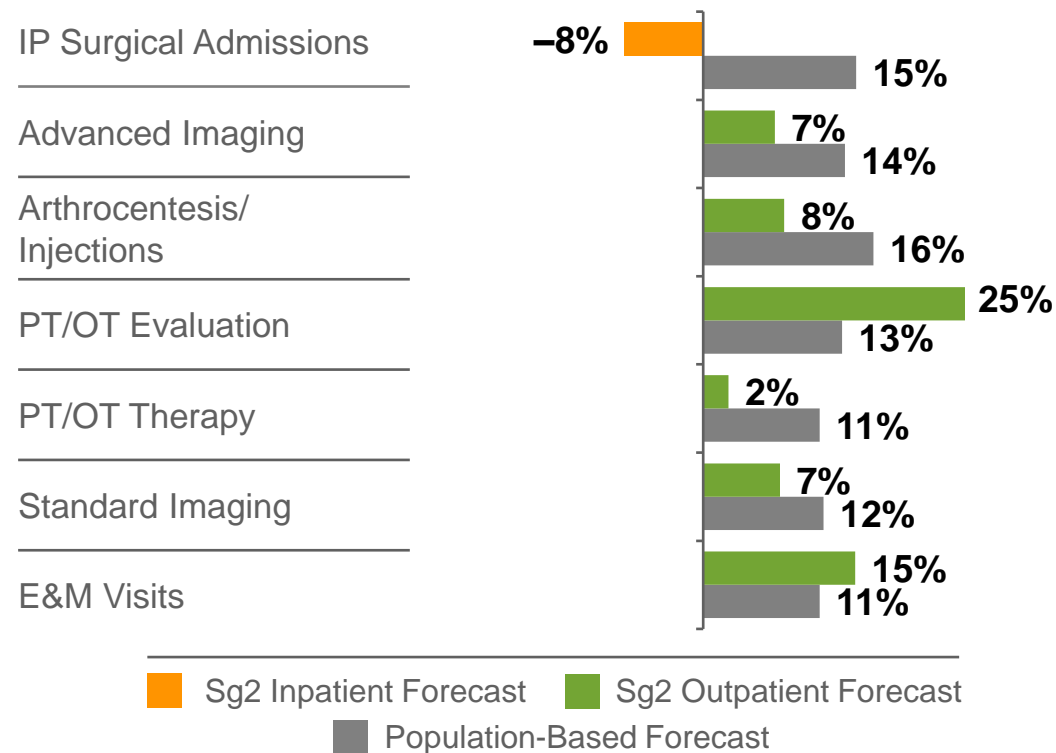
- Evaluate market-specific brakes and accelerators.
- Develop patient selection criteria.
- Ensure effective cost management and operational efficiency, including smart technology adoption.
- Revisit **comprehensive program development.**



10-Year Spine Forecast: Surgical Shifts Are Critical but Are Not the Whole Picture

Spine Volumes

Impact of Change® 2022, 2022–2032



FORECAST HIGHLIGHTS

Rising IP acuity case mix: A growing portion of surgical cases shift to outpatient and ambulatory settings; however, complex cases remain IP.

Advanced imaging: While payer scrutiny continues, growth resumes as opportunities for utilization reduction have been partially realized.

OP rehab: As the role of PT evolves, therapists see more patients while care redesign and virtual rehab reduce per episode follow-up postoperative visits.

Adopt a Consumer's Vantage Point to Inform Growth Strategy

WHAT DO CONSUMERS WANT?

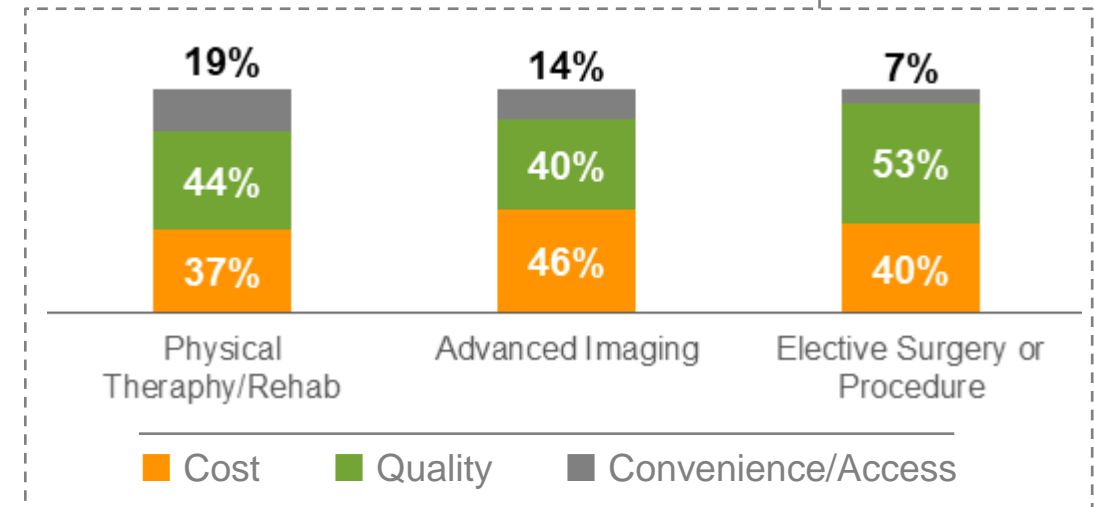


COVID-19 Impact:

- Shifting expectations and shifting consumers (“urban shuffle”; work from home)
- Lingering safety concerns; economic hardship

Almost **3 in 4** survey respondents said they prefer a **one-stop shop** for health care services.

Complex interplay between cost, quality and convenience



Note: Survey was fielded in December 2019, before the COVID-19 pandemic. **Sources:** Sg2 National Health Care Consumerism and Insurance Coverage Survey. 2018; Sg2 National Health Care Consumerism and Insurance Coverage Survey. December 2019.

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Address Disparities in Spine for Broader Consumer Connection

DIVERSITY MATTERS

Provider diversity impacts patient care and outcomes. Fewer than **4%** of neurosurgeons in the US are Black.

DISPARITIES PERSIST

2022 meta-analysis: Minority patients less likely to undergo spine surgery, more likely to receive surgery from low-volume providers, more likely to experience post-operative complications

UTILIZATION AND OUTCOMES VARY

An analysis of elective spine surgery cases using the Washington State Surgical Clinical Outcomes Assessment Program Database found that minority groups were less likely to have conservative management prior to surgery, less likely to be discharged home, and more likely to have post-operative complications compared to white patients.

Pursue
Proactive Outreach

Widen
Geographic Access

Tailor
Counseling Interventions

Comprehensive Programs Demonstrate Value to Payers and Employers, Patients, and Physicians

Common Elements of Comprehensive Programs

SPINE

Multidisciplinary Offerings

- Conservative care
- Pain management (yes, chronic pain too!)
- Surgical intervention

Access

- Defined entry point
- Timely evaluation and interventions
- Dedicated care coordinator/patient navigator
- Clear care paths

Triage

- Standardized intake process/forms
- Physician-directed referral algorithms
- Unbiased gatekeeper

Communication

- Multidisciplinary case review
- Regular follow-up with referring physicians
- Collection, analysis and reporting of outcomes



Connect the dots for patients



Ensure access and operational effectiveness



Demonstrate multidisciplinary approach



Deliver high-quality care across sites



Focus on metrics that matter



Spine Landscape

- ▶ **Brace** for continued policy whiplash and lingering pandemic disruptions.
- ▶ **Balance** the need for adaptability in the short term with long-term planning.
- ▶ **Engage**, educate and align clinical and administrative workforce to drive cost reduction and care transformation.
- ▶ While many focus on operational challenges, be ready to grow.
 - **Prioritize** growth opportunities in the context of local need, volume opportunity and financial sustainability: *Can you? Should you? And when?*
 - **Establish** a vision and identify core differentiators to guide strategic selection/deselection.
 - **Refine** scorecard metrics to align with programmatic initiatives, and tailor to your audience.

The Future of Spine Care

Appendix

Sg2's Impact of Change Forecasts

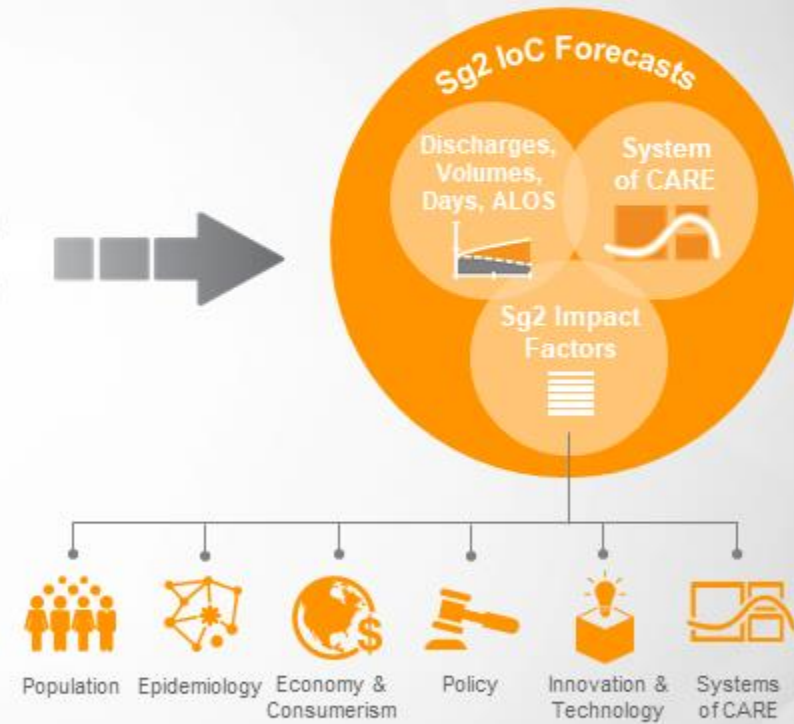
1. Sg2 uses multiple data sources to establish baseline volumes and emerging trends.



2. Sg2 analyzes inputs, organizes data into clinically relevant categories.



3. Sg2 answers your questions using our multicomponent forecasts.



CARE = Clinical Alignment and Resource Effectiveness.

Sources: Impact of Change®, 2019; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2016. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2017; The following 2017 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2019; Sg2 Analysis, 2021.

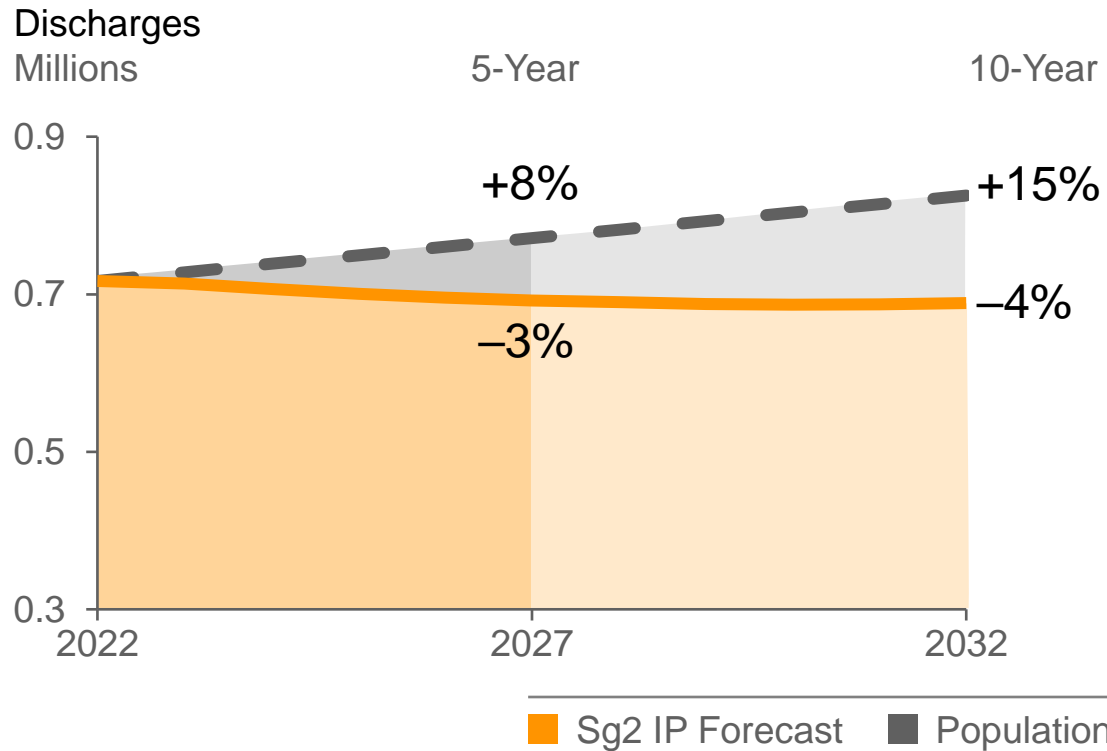
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10-Year Spine Forecast

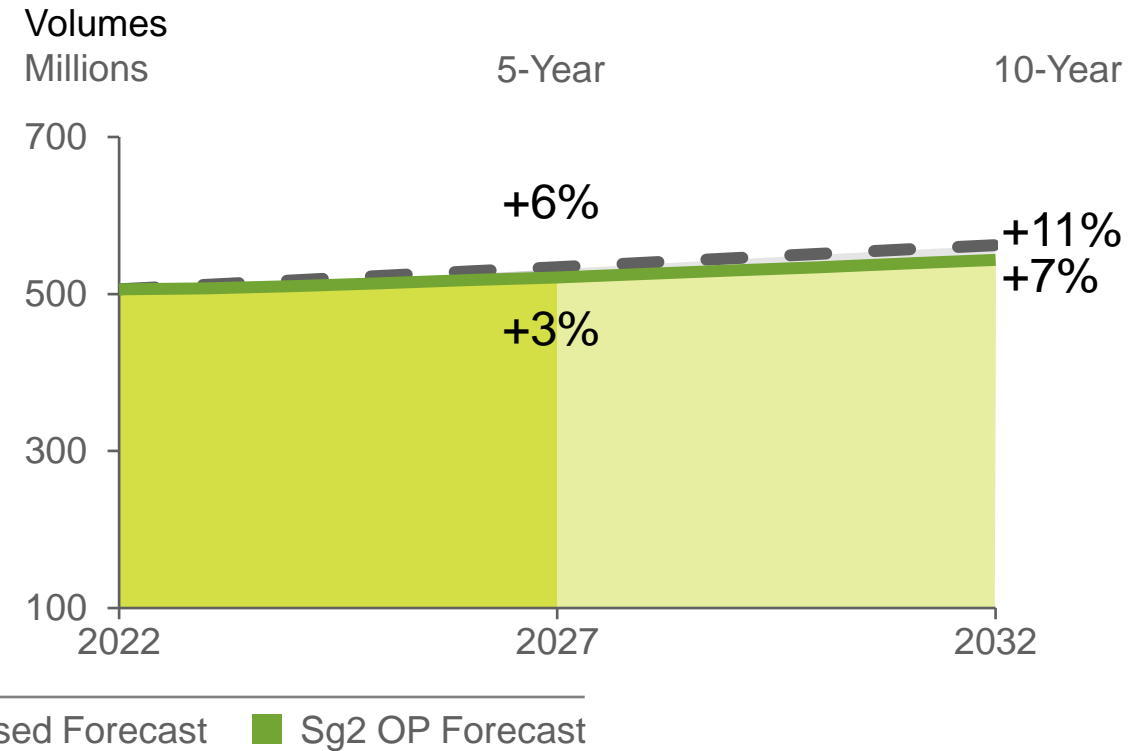
Inpatient Spine Forecast

US Market, 2022–2032



Outpatient Spine Forecast

US Market, 2022–2032

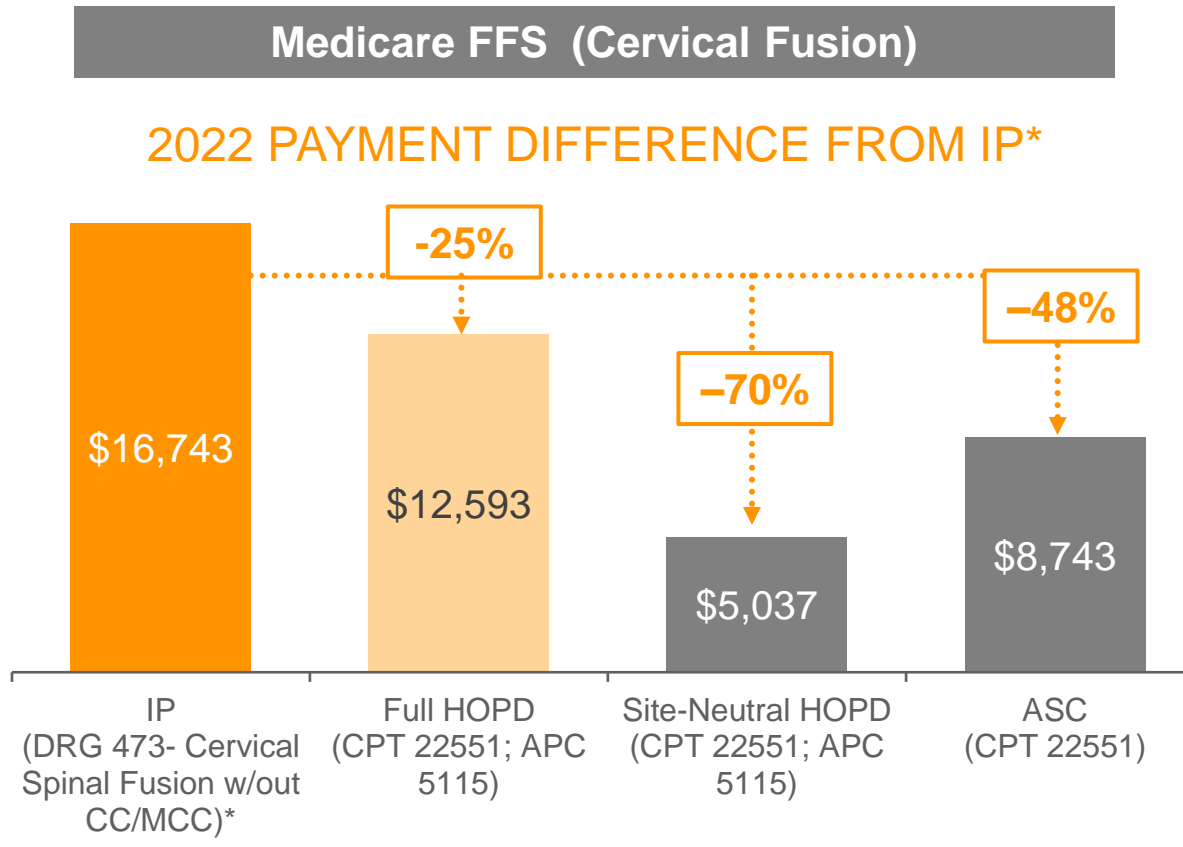


Note: Analysis excludes 0–17 age group and includes the spine service line only. **Sources:** Impact of Change®, 2022; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2019. Agency for Healthcare Research and Quality, Rockville, MD; Proprietary Sg2 All-Payer Claims Data Set, 2019; The following 2019 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2022; Sg2 Analysis, 2022.

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Payment and Policy Trends Demonstrate Rising Pressures Amid Site of Care Shifts



of ASCs specializing in spine surgery:

2013: **35** 2019: **145**

CMS: Prior Authorization for HOPD implanted spinal neurostimulators and cervical fusion with disc removal (effective July 1, 2021)

Avg. inflation-adjusted change in reimbursement (Top 15 spine surgery CPTs, based on MPFS): **-15.6%** (2011-2021)

*IP rates do not include adjustments for IME and DSH add-on payments. Add-on payments often result in 5% to 20% increase in DRG payment. HCPCS 22551 = Arthrodesis, anterior interbody, including disc space preparation, discectomy, osteophyctomy and decompression of spinal cord and/or nerve roots; cervical below C2. **Note:** Based on national Medicare facility payment rates. Full HOPD refers to on-campus or excepted hospital outpatient department (ie, sites exempted from site-neutral payment policies). APC = Ambulatory Payment Classification; ASC = ambulatory surgery center; FFS = fee-for-service; IP = inpatient; HOPD = hospital outpatient department. MPFS = medicare physician fee schedule. **Sources:** CMS. CY 2022 Final Rule: OPPS/ASC; CMS. FY 2022 Final Rule: IPPS; The Business of Moving Spine Cases to Surgery Centers. Becker's ASC Review. Sep 15, 2020; J Neurosurg Spine. 2022 Mar 25;1-8; All sources accessed April 2022. Sg2 Analysis, 2022. Confidential and Proprietary © 2022 Sg2

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Our analytics and expertise help hospitals and health systems achieve sustainable growth and ensure ongoing market relevance through the development of an effective System of CARE.

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