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For U.S. health care providers

# Services at Risk of Shifting from the Hospital Setting

30 high-priority outpatient sub-service lines and shift scenarios

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# Overview and methodology

## Research questions:

1. What outpatient services and service lines are most prone to shift from the hospital to freestanding settings of care in the decade ahead?
2. What percentage of hospital outpatient volume is at risk of shifting?
3. How much revenue does at-risk volume represent?
4. Nationally, are shifts in beginning, intermediate, or advanced stages?

## Methodology:

Advisory Board acquired claims from 2014 to 2021 from Optum's de-identified Clinformatics® Data Mart Database to identify historical shifts across sites of care and regions. We supplemented analysis of this claims data with interviews, a literature review, and a review of private and public coverage and fee schedule announcements. Below is a summary of the insights gleaned from this research, followed by detailed tables on the high-priority services we identified that have significant potential to shift away from the hospital setting. A detailed methodology and formulas are included on page 7.

## Observations and insights:

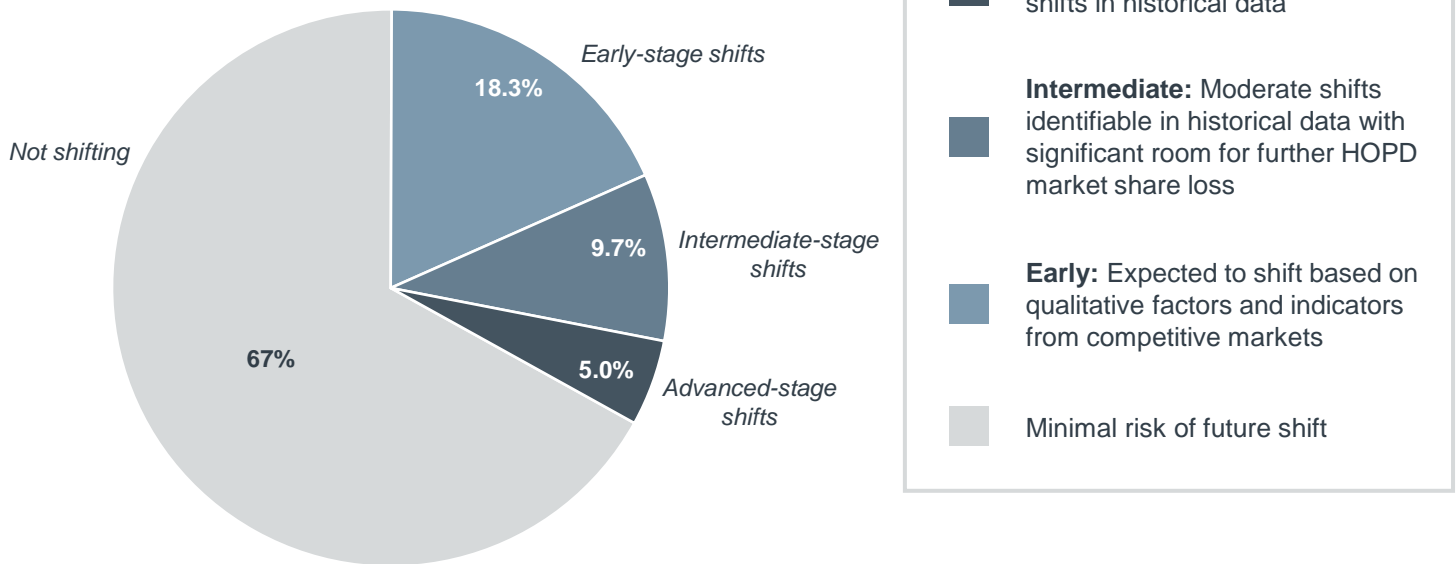
1. **Services at risk of shifting away from the hospital outpatient department (HOPD) span 30 sub-service lines, comprise one-third of hospital outpatient revenue, and account for 18% of HOPD volume.**  
The greatest number of services at risk of shift are concentrated in orthopedics, cardiology, and radiology service lines.
2. **The most notable “early shifter” procedures are percutaneous coronary interventions (PCI), total hip arthroplasty (THA), total knee arthroplasty (TKA), spinal fusion, spinal decompression, and laparoscopic cholecystectomy.** These procedures are more complex than most procedures performed in ambulatory settings today. They also account for a large share of hospital revenues.
3. **Ambulatory surgery centers (ASCs) are the primary entities gaining market share for high-priority hospital procedures.** Physician comfort and safety concerns will keep some procedures from shifting to these ambulatory sites, at least for a while. But other factors—including additions to CMS' covered procedures list, payer steerage tactics, and patient demand for convenient access—will support ambulatory growth. However, given that facility payments are typically lower in freestanding settings compared to hospitals, many sites will likely fail without strong physician backing and efficiency in their operations.

**Observations and insights (cont):**

- 4. Advanced-stage procedures at risk for further shifts are predominately within urology, pain management, ophthalmology, general surgery, and orthopedic service lines.** Many markets may already be at shift maturity for services such as arthroscopies, cataract procedures, bariatric procedures, and nerve blocks.
- 5. Intermediate-stage shifts are concentrated in ENT, radiology, and gastroenterology service lines.** The pace of shift for these services—including colonoscopy, advanced imaging, and tonsil/adenoid procedures—is often inhibited by local market variables, including presence (or absence) of ambulatory competitors. The efficacy of performing the services in ambulatory settings, though, is generally not in dispute.
- 6. Advanced-stage procedures were the most likely to shift further out of the hospital setting during the pandemic.** Shifts were the most pronounced in the sports medicine sub-service line. The median HOPD share declined by 10% on average for each of the procedures within this sub-service line from 2019 to 2021.

**Figure 1: Percentage of outpatient hospital revenue attributed to sub-service lines at risk for further shifts away from the hospital<sup>1</sup>**

*Freestanding competitors expected to compete for one-third of average HOPD revenue*



1. Revenue estimates are derived from CMS' Outpatient Standard Analytical File (SAF) and reflect average Medicare fee-for-service payment per case for outpatient encounters in 2020 Q3 - 2021 Q2.

# Estimating the impact of shifts

To estimate volume and revenue loss from shifts in site-of-care, compare your hospital’s current market share to future moderate and aggressive shift scenarios included in the table below. Estimates of median HOPD share and revenue per case are provided for organizations without ready access to their own data.

**Revenue loss calculation:**

$$\Delta \text{ Market share (initial minus final)} \times \text{Market volume}^1 \times \text{Revenue per case} = \text{Hospital revenue loss}$$

(42% - 17%)      1,000      \$4,820      ↓\$1,205,000

Example for meniscus procedures (moderate shift)

Moderate scenarios represent the 25th percentile market, and aggressive scenarios represent the 10th percentile market, when sufficient data is available

**Figure 2: Services at risk of shifting from the hospital setting**

Service line	Sub-service line (SSL)	Outpatient group <sup>1</sup>	Median HOPD share	Moderate shift share	Aggressive shift share	SSL revenue per case	Stage of shift
<b>Orthopedics</b> <i>Shifting to ASC</i>	Sports medicine	Knee procedures meniscus procedures repair/meniscectomy	42%	17%	10%	\$4,820	Advanced
		Shoulder procedures arthroscopy	40%	10%	N/A	\$4,820	Advanced
		Hip procedures arthroscopy	42%	16%	N/A	\$4,820	Advanced
		Knee procedures - ligament procedures - ACL reconstruction	37%	7%	N/A	\$4,820	Advanced
		Shoulder procedures - rotator cuff repair	50%	29%	10%	\$4,810	Advanced
	Joint Replacement	Arthroplasty - hip - total (THA)	100%	90%	78%	\$12,140	Early
		Arthroplasty - knee - total (TKA)	100%	89%	77%	\$12,140	Early
	Foot		44%	24%	11%	\$4,440	Intermediate
	Hand		28%	12%	6%	\$1,950	Intermediate
	<b>Spine</b> <i>Shifting to ASC, office</i>	Pain pumps and stimulators	Spinal cord stimulator lead/pulse generator implant/removal	50%	11%	N/A	\$14,460
Vertebral compression fracture treatment		Kyphoplasty	100%	48%	16%	\$6,140	Early
Fusion			100%	86%	48%	\$12,460	Early
Decompression			100%	69%	40%	\$6,320	Early

1. If blank, all procedure groups in the sub-service line are at risk of shift.  
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FIGURE 2 CONTINUED

Service line	Sub-service line (SSL)	Outpatient group <sup>1</sup>	Median HOPD share	Moderate shift share	Aggressive shift share	SSL revenue per case	Stage of shift
<b>Cardiology</b> <i>Shifting to ASC, office</i>	Electrophysiology	Pacemaker implant	100%	61%	N/A	\$10,640	Early
		ICD implant	100%	47%	N/A	\$10,640	Early
		Cardiac event recorder Implant	100%	80%	44%	\$10,640	Early
	Cardiac cath	Percutaneous transluminal coronary artery angioplasty	100%	N/A <sup>2</sup>	N/A	\$4,980	Early
		Percutaneous transluminal coronary artery stent placement	100%	51%	N/A	\$4,980	Early
<b>Vascular</b> <i>Shifting to ASC, office</i>	Vascular cath	Percutaneous transluminal peripheral artery balloon angioplasty	42%	9%	5%	\$3,760	Intermediate
		Percutaneous transluminal peripheral artery atherectomy	19% <sup>3</sup>	3%	N/A	\$3,760	Advanced
		Percutaneous transluminal peripheral artery stent placement	76%	20%	10%	\$3,760	Intermediate
<b>Radiology</b> <i>Shifting to freestanding imaging centers, office</i>	Ultrasound	Obstetrical ultrasound	18%	8%	4%	\$147	Intermediate
		Pelvic ultrasound	32%	18%	9%	\$147	Intermediate
	MRI	Bone/joint MRI	42%	28%	17%	\$328	Intermediate
		Spine MRI	52%	34%	20%	\$328	Intermediate
	Mammography		69%	45%	23%	\$112	Intermediate
	CT		76%	60%	46%	\$309	Intermediate
	Nuclear medicine		66%	34%	18%	\$498	Intermediate
<b>Neurosurgery</b> <i>Shifting to ASC</i>	Cranial/peripheral nerve disorders		100%	32%	25%	\$1,850	Early
<b>Obstetrics</b> <i>Shifting to office</i>	Fetal testing		32%	18%	6%	\$276	Intermediate
<b>Nephrology</b> <i>Shifting to home, office, dialysis center</i>	End-stage renal disease (ESRD)	Hemodialysis	96% <sup>3</sup>	30%	N/A	\$2,080	Intermediate

1. If blank, all procedure groups in the sub-service line are at risk of shift.  
 2. Insufficient data available.  
 3. Value represents average HOPD share, rather than median due to insufficient health referral region data.



FIGURE 2 CONTINUED

Service line	Sub-service line (SSL)	Outpatient group <sup>1</sup>	Median HOPD share	Moderate shift share	Aggressive shift share	SSL revenue per case	Stage of shift
<b>Ophthalmology</b> <i>Shifting to ASC, office</i>	Cataract procedures		14%	5%	N/A	\$2,060	Advanced
<b>Pain management</b> <i>Shifting to office</i>	Injections/blocks		22%	8%	2%	\$757	Advanced
<b>Urology</b> <i>Shifting to ASC, office</i>	General urology (especially cystoscopy)		16%	9%	3%	\$1,760	Advanced
<b>General surgery</b> <i>Shifting to ASC, office</i>	Gallbladder	Cholecystectomy - laparoscopic	100%	85%	51%	\$5,010	Early
	Bariatric	Gastric restrictive procedure - laparoscopic	73%	64%	N/A	\$3,200	Advanced
	Hernia		100%	92%	77%	\$4,520	Early
<b>ENT</b> <i>Shifting to ASC, office</i>	Middle/inner ear procedures	Tympanostomy	29%	6%	N/A	\$2,370	Intermediate
	Tonsils/adenoids procedures		68%	6%	5%	\$2,600	Intermediate
<b>Gastroenterology</b> <i>Shifting to ASC, office</i>	Esophagogastroduodenoscopy (EGD)	EGD procedural	59%	42%	29%	\$1,160	Intermediate
	Colonoscopy		47%	26%	18%	\$1,190	Intermediate
	Sigmoidoscopy		53%	17%	11%	\$908	Intermediate

1. If blank, all procedure groups in the sub-service line are at-risk of shift.

# Detailed methodology

## Data sources:

- Optum's de-identified Clinformatics® Data Mart Database from 2014 to 2021 (a claims sample encompassing nearly 2.7 billion visits across all 50 states)
- CMS' Outpatient Standard Analytical File (SAF)
- Medicare volume and revenue data used for estimating at-risk revenue reflect 2019 values

## Analysis and assumptions:

### *Identifying at-risk services:*

Site-of-service and outpatient groupings were assigned to claims data using proprietary algorithms maintained by Advisory Board. Historical shifts in market share across all sites of care were then analyzed from 2014 to 2021. Data was further divided into health referral regions to understand prevalence of and variability in use patterns across markets. This quantitative analysis was supplemented by a comprehensive literature review and interviews with service line experts. Services were excluded from the analysis if volume was low, financial impact of shifts were minimal, or confidence in shift potential was low.

### *Estimating at-risk revenue:*

To calculate the percentage of HOPD revenue that is at risk, hospital volumes and revenue-per-case values were obtained from Advisory Board's [Hospital Benchmark Generator tool](#). These values reflect Medicare fee-for-service claims only. Volume in at-risk sub-service lines is multiplied by the corresponding sub-service line revenue per case to calculate at-risk revenue. This value is divided by total revenue to understand percentage of revenue at risk. Revenue-per-case values equate to payments at a 50th percentile hospital. Volumes estimates equate to a theoretical large hospital in the 80th percentile in outpatient encounter volume. Since the relative volume makeup for the theoretical hospital relies on Medicare fee-for-service claims, the calculation does not include volumes for obstetrics, neurosurgery, bariatric, and tonsils/adenoids procedures due to inadequate volumes.

### *Projecting future shift scenarios:*


Moderate and aggressive shift scenario figures are based on markets with low HOPD market share. Moderate scenarios represent the 25th percentile market, and aggressive scenarios represent the 10th percentile market. When there is insufficient data in our claims sample to generate a reliable non-zero estimate, the minimum non-zero value is used or cells include an "N/A" label.


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