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National Variation in Outpatient Surgery Quality Across Medicare Advantage Plans

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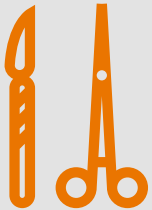
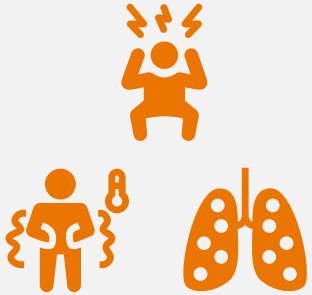
NCQA conducted this study using the Optum Labs Data Warehouse (OLDW). The OLDW contains de-identified retrospective administrative claims data, including medical and pharmacy claims and eligibility information as well as electronic health record (EHR) data.

Why focus on outpatient surgery quality among health plans?



>70% of surgeries are in outpatient settings



Adverse events are uncommon but do occur

Health plans can help prevent adverse events

Research Objective

Current studies and quality measures focus on adverse outpatient surgery outcomes among the Medicare Fee-for-Service population

Study Aim: Examine the health plan-level variation in hospitalizations following outpatient surgery among Medicare Advantage (MA) beneficiaries

Study Design

We compared hospitalization rates following four outpatient procedure categories:

- Colonoscopy
- General surgery
- Orthopedic procedures
- Urology procedures

Study Period: 1/1/22 – 12/31/22

Outcome: within 15-day acute, unplanned hospitalizations

Data Source: Optum Labs Data Warehouse

Methods

- **Denominator: Outpatient surgery events**: presence of a qualifying Current Procedural Terminology (CPT) code and Place of Service (POS) code (19, 22, or 24) on a claim
  - POS 19: Off Campus Outpatient Hospital
  - POS 22: On Campus Outpatient Hospital
  - POS 24: Ambulatory Surgical Center
- **Numerator Exclusions**: Admissions considered planned, principal diagnosis of cancer (colonoscopy rate only)

Risk Adjustment

Methodology

Logistic Regression

Estimated using Elastic Net

$$\frac{\textit{Observed hospitalizations}}{\textit{Expected hospitalizations}} = \textit{Observed-to-Expected (O/E) Ratio}$$

Risk Adjustment Variables

Age & Sex

Comorbidities

(CMS' HCC Model)

Index Procedure Type

(AHRQ Clinical Classifications Software)

HCC = Hierarchical Condition Categories

Population Studied

Denominator: A qualifying outpatient surgery during the study period for Medicare Advantage enrollees aged 65 and older

Procedure Category	# Outpatient Surgery Events	% female	% aged 65-74	% aged 75-84	% aged 85+
Colonoscopy	298,689	55.2	67.6	30.4	1.9
General Surgery	157,529	49.8	50.0	38.7	11.3
Orthopedic Procedures	140,884	61.8	62.3	32.8	4.9
Urology Procedures	68,839	33.8	49.3	39.8	10.8

Numerator: # hospitalizations within 15 days

Procedure Category	Numerator	Observed Rate (per 1,000)	% female	% aged 65-74	% aged 75-84	% aged 85+
Colonoscopy	1,979	6.63	51.8	53.7	40.8	5.46
General Surgery	2,154	13.7	47.4	41.2	42.2	16.6
Orthopedic Procedures	2,377	16.9	58.2	46.3	42.5	11.2
Urology Procedures	2,080	30.2	31.4	39.4	42.5	18.0

Principal Findings: Observed % of index surgeries followed within 15 days by hospitalization

Procedure Category	Mean (IQR) over all plans
Colonoscopy	0.79 (0.55-0.94)
General Surgery	1.59 (1.22-1.97)
Orthopedic	1.68 (1.29-2.06)
Urology	2.91 (2.30-3.42)

Variation in 15-day hospitalization rates

Risk-adjustment models: selected characteristics

Procedure Category	# independent variables	AUC (95% CI)	Observed events / Expected events (95% CI)
Colonoscopy	41	0.74 (0.70, 0.78)	0.92 (0.78, 1.06)
General Surgery	58	0.77 (0.74, 0.80)	0.98 (0.85, 1.11)
Orthopedic	52	0.74 (0.71, 0.77)	0.95 (0.82, 1.07)
Urology	24	0.64 (0.58, 0.70)	1.03 (0.83, 1.22)

AUC = area under receiver operating characteristic curve.
AUC and Observed/Expected ratio pertain to out-of-sample observations.

Principal Findings

Health Plan Level Observed/Expected Ratios

		O/E = (Observed hospitalizations) / (Expected hospitalizations)			
Procedure Category	N of Plans able to report	Mean	10th p	50th p	90th p
Colonoscopy	48	1.14	0.65	1.04	1.73
General Surgery	41	1.07	0.66	1.08	1.49
Orthopedic	40	1.00	0.68	0.96	1.47
Urology	36	0.98	0.64	1.01	1.29

p = percentile;
able to report = has at least 150 surgeries in denominator

Variation in health plan O/E ratios

Limitations

- Use of Optum Labs database only
- Rareness of the numerator event makes some conventional diagnostic statistics (e.g., AUC) less useful.
- The risk-adjustment models varied widely in terms of their ability to distinguish between surgeries that were likely vs. unlikely to be followed by a hospitalization.

Takeaways / Significance

- Potential to improve outcomes for patients who undergo outpatient surgery.
- Health plans play an important role in interventions and quality improvement efforts:
  - Contracting with high quality facilities
  - Ensuring appropriate follow-up and care coordination
- Measures focused on hospitalization following outpatient surgery can complement measures of hospital readmission, especially as CMS moves toward site-neutral payment

Thank You

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