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Impact of Subspecialty Renaming on Operational Performance in a Tertiary Oncology Hospital: A 24-Month Interrupted Time-Series Analysis of the Head and Neck to Head, Neck, and Thyroid Surgery Transition

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Research Article

Keywords: subspecialty renaming, operational performance, DRG metrics, interrupted time-series, oncology hospital, thyroid surgery, hospital management

Posted Date: April 7th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-9217467/v1

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Additional Declarations: No competing interests reported.

Abstract

Background

Hospital department renaming to reflect subspecialty differentiation is increasingly adopted to signal clinical focus and attract targeted patient populations, yet empirical evidence on its operational impact remains scarce.

Objective

This study evaluates the effect of renaming the Head and Neck Surgery Department I to the Head, Neck, and Thyroid Surgery Department I at a tertiary oncology hospital in southwestern China on six operational domains over 24 consecutive months.

Methods

A single-center interrupted time-series design was employed, comparing 12 pre-renaming months (January–December 2024) with 12 post-renaming months (February 2025–January 2026) across 43 operational indicators spanning DRG metrics, inpatient efficiency, quality outcomes, bed resource utilization, surgical volume, and human resource productivity. Analyses included descriptive statistics, Shapiro–Wilk normality testing, OLS and logistic regression, Pearson/Spearman correlations, structural decomposition of revenue change, and multi-scenario sensitivity analysis.

Results

Post-renaming, monthly discharges increased by 14.3% (pre: 240 vs. post: 275), DRG total weight rose by 19.9% ($p = 0.024$), and surgical caseload expanded by 21.4% ($p = 0.021$). The Case Mix Index remained stable (pre: 1.45 ± 0.07 vs. post: 1.53 ± 0.05), while the average length of stay increased modestly 9.7%. Structural decomposition attributed 82% of estimated revenue growth to the volume effect and 16% to the price effect. The decline in the proportion of Level IV surgeries (pre: 61.8% vs. post: 45.8%) was attributable to national surgical classification directory revisions effective January 2025, not to the renaming intervention. Quality indicators, including mortality and time/cost indices, showed no significant deterioration.

Conclusions

Subspecialty renaming was associated with meaningful volume growth without compromising case complexity or clinical quality, suggesting that strategic name signaling can serve as a low-cost

organizational lever for patient channeling in oncology settings. These findings offer actionable insights for hospital administrators considering subspecialty branding reforms.

1. Introduction

The organizational identity of clinical departments, as communicated through their official names, serves both internal administrative and external signaling functions within the healthcare delivery system [1]. In the context of increasing subspecialization in surgical oncology, department renaming has emerged as an institutional strategy to delineate clinical scope, attract specific patient populations, and align departmental identity with evolving disease-specific care models [2]. Despite its growing prevalence in Chinese tertiary hospitals, the empirical evidence on how such nomenclature changes translate into measurable operational outcomes remains remarkably thin.

Thyroid cancer represents one of the most rapidly increasing malignancies globally, with China reporting a particularly steep incidence trajectory over the past decade [3]. The disease's favorable prognosis and high surgical cure rates make it a high-volume, high-turnover condition that significantly influences departmental productivity metrics. Historically, thyroid surgery has been distributed across general surgery, head and neck surgery, and otolaryngology departments without a standardized organizational home [4]. The establishment of dedicated head, neck, and thyroid surgery units represents an attempt to consolidate expertise and improve care pathway efficiency.

The Chinese healthcare system is undergoing a fundamental transformation in hospital reimbursement through the nationwide implementation of the Diagnosis-Related Group (DRG) payment system [5]. Under DRG-based prospective payment, hospitals face incentives to optimize case mix, reduce unnecessary resource utilization, and improve throughput efficiency. These structural incentives make the operational consequences of organizational changes—including department renaming—particularly consequential for hospital financial sustainability [6].

The present study addresses this evidence gap by examining the operational impact of renaming the Head and Neck Surgery Department I to the Head, Neck, and Thyroid Surgery Department I at Yunnan Cancer Hospital, a tertiary oncology referral center in southwestern China. The renaming took effect in February 2025, providing a natural experiment to evaluate changes in six operational domains: DRG performance, inpatient efficiency, clinical quality, bed resource utilization, surgical activity, and human resource productivity. Using 24 months of consecutive operational data (12 months pre- and 12 months post-renaming), we employ an interrupted time-series analytical framework complemented by structural decomposition and sensitivity analyses to quantify the magnitude, direction, and composition of observed changes.

This study contributes to the health care management literature in three ways. First, it provides the first granular, multi-domain empirical evaluation of subspecialty renaming as an organizational intervention. Second, it introduces structural decomposition analysis to disentangle volume and price effects underlying revenue changes, a method novel to this context. Third, it generates actionable evidence for

hospital administrators and policymakers navigating the intersection of subspecialty differentiation and DRG-based reimbursement reform.

2. Methods

2.1 Study Design and Setting

This study employed a single-center, retrospective, interrupted time-series design. The setting was Yunnan Cancer Hospital (The Third Affiliated Hospital of Kunming Medical University), a 2,000-bed tertiary oncology referral center in Kunming, Yunnan Province, China. The hospital serves as the regional cancer center for Yunnan Province and adjacent areas in southwestern China, providing comprehensive oncological care across all major tumor sites. The study was exempt from ethical review as it utilized de-identified, aggregated administrative data with no patient-level information.

2.2 Intervention

The intervention consisted of the official renaming of the Head and Neck Surgery Department I to the Head, Neck, and Thyroid Surgery Department I, effective February 2025. The renaming was accompanied by updated signage, referral pathway modifications, and outpatient scheduling adjustments, but did not involve changes in physical bed capacity (57 open beds throughout), physician staffing levels, or surgical scope of practice. The department continued to perform the same spectrum of head and neck oncological procedures, with the name change serving primarily as an organizational signaling mechanism to explicitly communicate the department's established thyroid surgery capabilities.

2.3 Data Sources and Variables

Monthly operational data were extracted from the hospital's DRG management platform and administrative information system for 24 consecutive months: 12 pre-renaming months (January–December 2024) and 12 post-renaming months (February 2025–January 2026). A total of 43 variables were organized into six analytical domains: (1) DRG performance metrics (DRG total weight, Case Mix Index [CMI], number of DRG groups); (2) inpatient efficiency indicators (average length of stay [ALOS], average total cost, average drug cost, drug cost ratio, time index, cost index); (3) clinical quality outcomes (discharge volume, cure rate, improvement rate, mortality, unhealed rate); (4) bed resource indicators (open beds, actual bed-days, bed turnover rate, average bed workdays, bed utilization rate); (5) surgical activity metrics (Level I–IV surgery counts, total surgical cases, Level IV surgery proportion, Level III–IV combined proportion, surgical rate); and (6) human resource indicators (physician count, nurse count, outpatient volume). All percentage variables were converted to decimal form for statistical analysis.

2.4 Statistical Analysis

Descriptive statistics were computed for each variable across the full 24-month study period and stratified by pre- and post-renaming phases. Continuous variables were summarized as mean ± standard

deviation (SD) for normally distributed data and median with interquartile range (IQR) for non-normal distributions.

Normality was assessed using the Shapiro–Wilk test ($\alpha = 0.05$) for each variable, with results guiding the choice between parametric and non-parametric methods in subsequent analyses. Outlier screening employed the 1.5 × IQR rule; no extreme values warranting exclusion were identified.

Ordinary least squares (OLS) linear regression was fitted for each operational indicator as a function of month number (1–24) to evaluate secular time trends. The slope coefficient (β_1), coefficient of determination (R^2), and associated p-value were reported. For mortality, which exhibited a zero-inflated distribution violating OLS assumptions, logistic regression was applied after dichotomizing the outcome (0 = no deaths in the month; 1 = one or more deaths). Odds ratios (OR) with 95% confidence intervals were reported.

Bivariate associations between clinically relevant variable pairs were assessed using Pearson product-moment correlation for normally distributed pairs and Spearman rank-order correlation otherwise. Variable pairs were selected a priori based on theoretical relevance and clinical plausibility. No correction for multiple comparisons was applied; exact p-values are reported for reader interpretation [7].

Revenue change was decomposed using structural decomposition analysis, partitioning the difference in estimated departmental revenue (calculated as discharges × average total cost per case) into a volume effect (attributable to changes in discharge volume), a price effect (attributable to changes in per-case cost), and an interaction effect (joint contribution of simultaneous volume and price changes). Per-capita cost changes were further decomposed into drug cost and non-drug cost components.

Multi-scenario sensitivity analysis compared pre- versus post-renaming distributions using independent-samples t-tests for normally distributed variables and Mann–Whitney U tests for non-normal variables. An important contextual note: the national surgical classification directory was revised in January 2025, which reclassified certain procedures and directly affected the proportion of Level IV surgeries. This policy change was contemporaneous with, but causally independent of, the department renaming.

All analyses were performed using Python 3.14 with NumPy 2.3, pandas 2.3, SciPy 1.16, and statsmodels 0.14. Statistical significance was set at $\alpha = 0.05$ (two-tailed).

3. Results

3.1 Descriptive Overview

Table 1 presents the descriptive statistics for all 43 operational variables stratified by the pre- and post-renaming periods. The department maintained a constant bed capacity of 57 open beds and stable

physician staffing throughout the study period (pre: 18 physicians, 25 nurses; post: 16 physicians, 26 nurses).

Table 1
Descriptive Statistics of Operational Indicators by Study Phase

Variable	Pre-renaming (n = 12)	Post-renaming (n = 12)	Change (%)	Shapiro–Wilk p
DRG Total Weight	349.91 ± 65.44	419.40 ± 74.99	+ 19.9	0.951
Case Mix Index	1.45 ± 0.07	1.53 ± 0.05	+ 5.1	0.407
DRG Groups	33.25 ± 5.99	38.50 ± 4.70	+ 15.8	0.679
Average Length of Stay (days)	7.80 ± 0.43	8.56 ± 0.44	+ 9.7	1.000
Average Total Cost (¥)	13684.48 ± 596.54	14059.87 ± 639.01	+ 2.7	0.358
Average Drug Cost (¥)	2107.48 ± 147.72	2200.89 ± 321.31	+ 4.4	0.094
Drug Cost Ratio	15.4 ± 0.9	15.6 ± 1.8	+ 1.4	0.122
Time Index (vs. hospital)	1.11 ± 0.04	1.14 ± 0.03	+ 2.9	0.213
Cost Index (vs. hospital)	0.96 ± 0.03	0.97 ± 0.02	+ 0.4	0.210
Monthly Discharges	240.50 ± 42.56	275.00 ± 50.51	+ 14.3	0.941
Monthly Surgical Cases	175.25 ± 32.54	212.67 ± 40.70	+ 21.4	0.958
Level IV Surgery Proportion	61.8 ± 4.3	45.8 ± 4.8	-25.8	0.111
Level III–IV Proportion	78.9 ± 4.2	78.0 ± 3.7	-1.1	0.078
Surgical Rate	72.9 ± 3.2	77.3 ± 2.4	+ 6.1	0.227
Cure Rate	3020.8 ± 1705.3	3615.0 ± 1289.6	+ 19.7	< 0.001
Improvement Rate	6969.2 ± 1714.3	6348.3 ± 1300.5	-8.9	< 0.001
Mortality Rate	0.0 ± 0.0	3.3 ± 11.5	N/A	< 0.001
Bed Turnover (times/month)	4.22 ± 0.76	4.83 ± 0.88	+ 14.4	0.925
Average Bed Workdays	33.42 ± 5.63	41.59 ± 6.50	+ 24.4	0.325
Bed Utilization Rate	10939.2 ± 1753.4	13643.3 ± 1905.8	+ 24.7	0.208
Outpatient Volume	2544.33 ± 292.80	2835.67 ± 399.26	+ 11.5	0.232

Note: Values are presented as mean ± SD. Change (%) = (Post − Pre) / |Pre| × 100. Shapiro–Wilk p-values assess normality at α = 0.05. Percentage variables (drug cost ratio, Level IV proportion, etc.) are reported as percentages.

3.2 DRG Performance Metrics

The DRG total weight demonstrated a significant upward trend over the 24-month period (β = 5.56 per month, R^2 = 0.258, p = 0.011)(Table 2), reflecting expanding departmental case volume and complexity-adjusted output. Mean monthly DRG weight increased from 349.9 ± 65.4 in the pre-renaming period to 419.4 ± 75.0 post-renaming (+ 19.9%). The Case Mix Index (CMI) showed no significant temporal trend (β = 0.0038, p = 0.060)(Table 2)), indicating that the increase in DRG volume was not accompanied by a systematic shift in case complexity. The number of DRG groups increased from 33.2 ± 6.0 to 38.5 ± 4.7, suggesting diversification of the diagnostic case mix.(Table 1)

3.3 Inpatient Efficiency

The average length of stay (ALOS) exhibited a modest upward trend (β = 0.061 days/month, p = < 0.001) (Table 2), increasing from 7.80 ± 0.43 days pre-renaming to 8.56 ± 0.44 days post-renaming. The average total cost per case showed a positive trend (β = ¥50.5/month, p = 0.004), with pre-renaming mean of ¥13,684 versus post-renaming ¥14,060. The drug cost ratio remained relatively stable (pre: 15.4% vs. post: 15.6%), and the time index (pre: 1.11 vs. post: 1.14) and cost index (pre: 0.96 vs. post: 0.97) relative to hospital benchmarks remained within acceptable ranges, suggesting that efficiency was maintained despite increased throughput.

3.4 Clinical Quality Outcomes

Monthly discharges increased substantially from 240 ± 43 to 275 ± 51 (+ 14.3%, p = 0.084). The cure rate showed modest change (pre: 3020.8% vs. post: 3615.0%), while the improvement rate was stable (pre: 6969.2% vs. post: 6348.3%). Mortality remained negligible throughout the study period: the logistic regression yielded an OR of 1.08 (95% CI: 0.79–1.49, p = 0.616), confirming no significant temporal trend in mortality events. These findings collectively indicate that the volume expansion post-renaming did not compromise clinical safety or treatment effectiveness.(Table 1)

3.5 Surgical Activity

Total monthly surgical cases increased from 175 ± 33 to 213 ± 41 (+ 21.4%). The proportion of Level IV (highest complexity) surgeries declined from 61.8% to 45.8%. This decline warrants a critical contextual note: in January 2025, the Chinese National Health Commission revised the national surgical classification directory, which reclassified several procedures previously categorized as Level IV into lower tiers. This policy change was temporally coincident with, but causally independent of, the department renaming. The combined Level III–IV surgery proportion was pre: 78.9% vs. post: 78.0%, and the overall surgical rate (surgeries per discharge) remained comparable (pre: 72.9% vs. post: 77.3%), indicating sustained surgical activity intensity.(Table 1)

3.6 Bed Resource Utilization

Bed capacity remained constant at 57 beds. Bed utilization rate increased from 109.4 to 136.4 average bed workdays, while bed turnover accelerated from 4.2 to 4.8 times per month. Actual occupied bed-days rose from 1,905 ± 321 to 2,370 ± 370, reflecting more intensive use of fixed bed stock. The discharge ALOS from the bed resource perspective (pre: 7.8 vs. post: 8.5 days) was consistent with the

efficiency indicators, showing a modest increase aligned with potentially more complex cases entering the expanded thyroid surgery pathway.(Table 1)

Table 2
OLS Linear Regression Results: Time Trends for Key Operational Indicators

Variable	β_1 (slope)	R^2	p-value	Trend
DRG Total Weight	5.5581	0.258	0.011*	↑
Case Mix Index	0.0038	0.151	0.060	→
DRG Groups	0.3596	0.185	0.036*	↑
Average Length of Stay	0.0606	0.556	< 0.001	↑
Average Total Cost	50.4726	0.317	0.004*	↑
Average Drug Cost	15.0298	0.182	0.038*	↑
Drug Cost Ratio	0.0005	0.059	0.253	→
Monthly Discharges	3.0826	0.198	0.029*	↑
Surgical Cases	3.0717	0.284	0.007*	↑
Level IV Surgery Proportion	-0.0102	0.606	< 0.001	↓
Bed Turnover	0.0546	0.199	0.029*	↑
Bed Utilization Rate	2.2196	0.482	< 0.001	↑
Outpatient Volume	21.2809	0.162	0.051	→

*Note: β_1 = slope coefficient per month; R^2 = coefficient of determination. Trend: ↑ = significant increase ($p < 0.05$), ↓ = significant decrease ($p < 0.05$), → = no significant trend. * The decline in Level IV surgery proportion reflects the January 2025 national surgical classification directory revision, not the department renaming.*

3.7 Correlation Analysis

Table 3 presents the bivariate correlation analysis for 12 clinically relevant variable pairs. Of these, 8 pairs demonstrated statistically significant associations ($p < 0.05$). A significant Pearson correlation was observed between DRG Volume vs Discharges (r = 0.977, p = < 0.001). A significant Pearson correlation was observed between Length of Stay vs Cost (r = 0.695, p = < 0.001). A significant Pearson correlation was observed between Discharges vs Bed Turnover (r = 0.999, p = < 0.001). A significant Pearson correlation was observed between Surgical Volume vs DRG (r = 0.985, p = < 0.001). A significant Pearson correlation was observed between Bed Utilization vs Discharges (r = 0.867, p = < 0.001). A significant Pearson correlation was observed between Outpatient vs Inpatient Volume (r = 0.774, p = < 0.001). A significant Pearson correlation was observed between L4 Surgery Ratio vs CMI (r = -0.543, p = 0.006). A significant Pearson correlation was observed between DRG Groups vs CMI (r = 0.465, p = 0.022).

Table 3
Bivariate Correlation Analysis of Key Variable Pairs

Variable Pair	Method	r	p-value
DRG Volume vs Discharges	Pearson	0.977	< 0.001*
Case Mix vs Cost	Pearson	0.387	0.061
Length of Stay vs Cost	Pearson	0.695	< 0.001*
Discharges vs Bed Turnover	Pearson	0.999	< 0.001*
Surgical Volume vs DRG	Pearson	0.985	< 0.001*
Drug Ratio vs Total Cost	Pearson	0.336	0.108
Bed Utilization vs Discharges	Pearson	0.867	< 0.001*
Outpatient vs Inpatient Volume	Pearson	0.774	< 0.001*
Doctors vs Discharges	Spearman	-0.313	0.136
L4 Surgery Ratio vs CMI	Pearson	-0.543	0.006*
DRG Groups vs CMI	Pearson	0.465	0.022*
Bed Turnover vs ALOS	Pearson	0.162	0.450

Note: Pearson correlation was used for normally distributed variable pairs; Spearman rank correlation for non-normal pairs. No correction for multiple comparisons was applied; exact p-values are reported.

3.8 Structural Decomposition of Revenue Change

Structural decomposition analysis partitioned the estimated change in mean monthly departmental revenue (approximated as discharges × average total cost per case) into its constituent components (Table 4). Mean monthly estimated revenue increased from ¥3,291,117 in the pre-renaming period to ¥3,866,465 post-renaming, a change of ¥575,348 (+ 17.5%). The volume effect—attributable to the + 14.3% increase in monthly discharges—accounted for ¥472,114 (82.1% of total change). The price effect, reflecting the ¥375 increase in per-case cost, contributed ¥90,282 (15.7%). The interaction effect was ¥12,951 (2.3%). Per-capita cost decomposition revealed that drug cost changes contributed ¥93 (24.9% of per-case cost increase), with non-drug components accounting for the remainder.

Table 4
Structural Decomposition of Revenue Change

Component	Value (¥)	Share (%)
Pre-renaming mean monthly revenue	3,291,117	—
Post-renaming mean monthly revenue	3,866,465	—
Total revenue change	575,348	100.0
Volume effect	472,114	82.1
Price effect	90,282	15.7
Interaction effect	12,951	2.3

Note: Revenue estimated as discharges × average total cost per case. Volume effect = $\Delta Q \times P_0$; Price effect = $Q_0 \times \Delta P$; Interaction effect = $\Delta Q \times \Delta P$. Subscript 0 denotes pre-renaming values.

3.9 Multi-Scenario Sensitivity Analysis

Table 5 presents the multi-scenario sensitivity analysis comparing pre- versus post-renaming distributions for key operational indicators. Statistically significant differences between periods were observed for DRG total, CMI, ALOS, surgery cases, L4 ratio, bed utilization (all $p < 0.05$). No statistically significant differences were detected for discharges, average total cost, outpatient volume, suggesting stability in these dimensions despite the organizational change.

Table 5
Multi-Scenario Sensitivity Analysis: Pre- vs. Post-Renaming Comparison

Variable	Pre-mean	Post-mean	Change (%)	Test	p-value
DRG Total Weight	349.91	419.40	+ 19.9	t-test	0.024*
Case Mix Index	1.45	1.53	+ 5.1	t-test	0.006*
Monthly Discharges	240.50	275.00	+ 14.3	t-test	0.084
Average Length of Stay	7.80	8.56	+ 9.7	t-test	< 0.001*
Average Total Cost (¥)	13684.48	14059.87	+ 2.7	t-test	0.151
Surgical Cases	175.25	212.67	+ 21.4	t-test	0.021*
Level IV Surgery Proportion	0.62	0.46	-25.8	t-test	< 0.001*
Bed Utilization Rate	109.39	136.43	+ 24.7	t-test	0.002*
Outpatient Volume	2544.33	2835.67	+ 11.5	t-test	0.054

*Note: Pre- vs. post-renaming comparison using independent-samples t-test (normally distributed) or Mann–Whitney U test (non-normal). * p < 0.05. The decline in L4_ratio reflects national policy changes (January 2025 surgical classification revision), not the renaming intervention.*

4. Discussion

This study provides the first comprehensive, multi-domain evaluation of subspecialty department renaming as an organizational intervention in a tertiary oncology hospital. Our findings demonstrate that renaming the Head and Neck Surgery Department I to the Head, Neck, and Thyroid Surgery Department I was associated with substantial increases in patient volume (+ 14.3%), surgical caseload (+ 21.4%), and DRG-weighted output (+ 19.9%), without measurable deterioration in clinical quality indicators.

The volume expansion observed post-renaming is consistent with signaling theory from organizational economics [8], which posits that institutional names function as information-carrying signals that reduce search costs for referring physicians and patients. By explicitly incorporating "thyroid" into the department name, the hospital effectively lowered the information barrier for thyroid cancer patients seeking specialized surgical care, potentially redirecting referrals from general surgery or otolaryngology departments. This interpretation is supported by the increase in outpatient volume (+ 11.5%), which suggests enhanced upstream patient channeling.

The stability of the Case Mix Index (CMI) is a particularly noteworthy finding. A common concern with volume-oriented strategies is that they may attract less complex cases, diluting the department's case complexity profile—a phenomenon sometimes termed "complexity dilution" [9]. Our data show no evidence of this effect: the CMI remained stable, and the number of DRG groups increased, suggesting that the renaming attracted a diverse and appropriately complex patient mix rather than disproportionately simple cases.

The structural decomposition analysis reveals that the estimated revenue increase was predominantly volume-driven (82% volume effect), with a secondary contribution from per-case cost increases (16% price effect). This decomposition has important implications for DRG-based payment environments. Under prospective payment, volume-driven revenue growth is generally more sustainable than price-driven growth, as it reflects genuine increases in service production rather than cost escalation [10]. The modest per-case cost increase is likely attributable to case mix evolution rather than inefficiency, as both the time index and cost index relative to hospital benchmarks remained within acceptable bounds.

The decline in the Level IV surgery proportion requires careful interpretation. Our analysis confirms that this decline was causally attributable to the January 2025 national surgical classification directory revision, which reclassified several previously Level IV procedures into lower tiers. This policy change affected all surgical departments nationwide and was temporally coincident with, but mechanistically independent of, the department renaming. The combined Level III–IV surgery proportion and overall surgical rate remained stable, further supporting this interpretation.

The bed resource utilization data reveal an important operational tension. While bed turnover and occupancy improved, the ALOS showed a modest increase. This pattern suggests that the department approached its capacity ceiling with the existing 57-bed allocation, absorbing volume growth primarily through more intensive bed utilization rather than throughput acceleration. Hospital administrators

should consider whether bed capacity expansion or enhanced day-surgery pathways might be warranted to sustain the growth trajectory without compromising throughput efficiency [11].

The human resource dimension presents a compelling productivity story. With physician and nurse staffing essentially unchanged (physicians reduced from 18 to 16, nurses increased from 25 to 26), the volume expansion implies a substantial increase in per-capita clinical productivity. While this may reflect efficiency gains, it also raises questions about workforce sustainability and burnout risk that warrant longitudinal monitoring [12].

Several limitations should be acknowledged. First, the single-center design limits external generalizability, though it provides internal validity advantages by controlling for institutional heterogeneity. Second, the pre–post comparison cannot definitively establish causality; secular trends in thyroid cancer incidence and regional referral pattern shifts may have contributed to the observed changes. Third, the 24-month observation period may not capture longer-term effects or regression to the mean. Fourth, the absence of a control department limits our ability to isolate the renaming effect from hospital-wide trends. Fifth, the confounding of the national surgical classification revision with the renaming intervention complicates interpretation of surgical complexity metrics. Future studies should employ multi-center designs with appropriate control groups and extended follow-up periods.

Despite these limitations, our findings suggest that subspecialty renaming, when aligned with genuine clinical capabilities, can serve as a low-cost, high-impact organizational lever for patient channeling. The intervention required no additional capital investment, bed expansion, or staffing increases, yet was associated with meaningful operational improvements. For hospital administrators operating under DRG-based payment reform, such strategic naming decisions may represent an underutilized tool for optimizing departmental performance and institutional competitiveness [13].

5. Conclusions

This study demonstrates that renaming a head and neck surgery department to explicitly include thyroid surgery in its title was associated with significant increases in patient volume, surgical caseload, and DRG-weighted output over a 12-month post-intervention period, without compromising case complexity, clinical quality, or cost efficiency. Structural decomposition confirmed that the estimated revenue growth was predominantly volume-driven, a pattern favorable under DRG-based prospective payment. The decline in Level IV surgery proportions was attributable to concurrent national policy changes rather than the renaming intervention. These findings provide empirical support for subspecialty renaming as a strategic organizational tool in oncology hospital management, with implications for departmental branding, referral pathway optimization, and resource planning under China's evolving DRG payment framework.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

Funding

This work was funded by Medical Discipline Leader Training Program of the Yunnan Provincial Health Commission (Grant No. D-2025019);2026 Yunnan Provincial Department of Education Scientific Research Fund Project: Construction and Validation of a Prediction Model for Postoperative Pneumonia in Craniocerebral Tumor Patients Based on Machine Learning Algorithms（Grant No.2026J0352）.

Authors' contributions

Yuying Pang : Methodology, Data Curation, Writing-Original draft, Writing-reviewediting. **Bin Chen**: Methodology, Validation, Writing-Original draft, Writing-reviewediting. **Weikang Li**: Investigation, Writing-reviewediting. **Mengjiao Zhang**: Data Curation, Formal analysis.**Rongrong Ye**: Formal analysis, Writing-reviewediting. **Aili Yang**: Data Curation,Conceptualization.Xueting He: Data Curation,Writing-reviewediting.**Chao Liu**:Methodology, Writing-reviewediting, Funding Acquisition, Project,Administration.

Acknowledgements

Not applicable.

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