

# Two-Year Cost Analysis of Common Head and Neck Cancers: Index Procedures and Adjuvant Therapies

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## Background & Objective

**Background:** Head and neck cancer treatment frequently involves surgery followed by intensive adjuvant care. Although surgical costs are well understood, the relative contribution of post-operative therapies to long-term costs has yet to be categorized.

**Objective:** To examine how the cost of index surgical procedures for head and neck cancers relates to subsequent costs of adjuvant therapies over two years.

## Methods

**Design:** Retrospective cohort analysis using the PearlDiver Mariner claims database (n=170 million from Jan 1, 2010 – April 30, 2023)

**Population:** Patients with malignant prostate neoplasm who underwent radical prostatectomy between Jan 1, 2015 and April 30, 2023 with ≥6 months pre-index and ≥ 24 post-index continuous enrollment

**Measures:**

- 3-month pre-procedure, 6-month post-procedure, and 2-year post-procedure costs were determined based on claims data from the Mariner database
- Index procedure costs were estimated using 2025 CMS DRG/APC payments and national average commercially contracted DRG/APC payment rates available in the PayerPrice dataset, weighted by the national averages for commercial vs Medicare patients and inpatient vs outpatient care settings

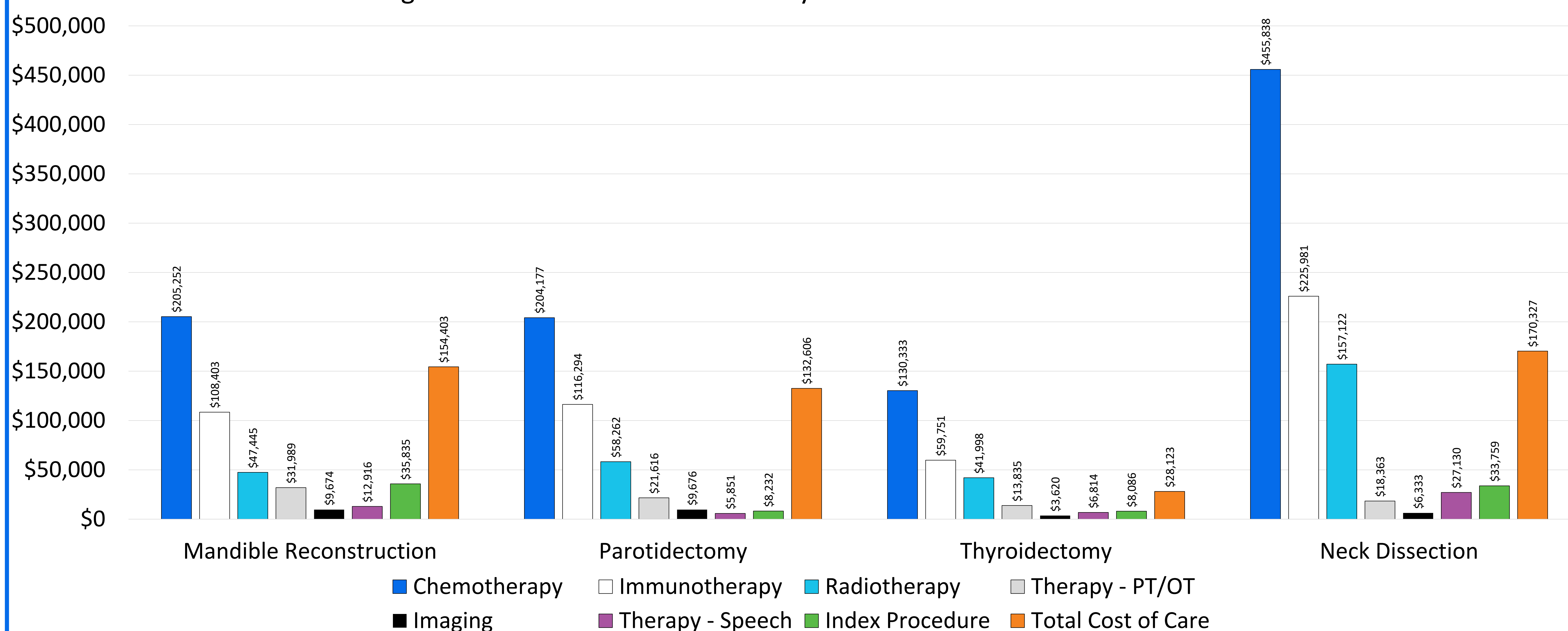
## Results

	Mandible Reconstruction n=2,960	Parotidectomy n=8,297	Thyroidectomy n=54,186	Neck Dissection n=24,636
Avg. Age	50.93 years	60.68 years	53.72 years	59.06 years
Sex				
Male	1,837 (62.06%)	4,985 (60.08%)	13,574 (25.05%)	14,515 (58.92%)
Female	1,123 (37.94%)	3,312 (39.92%)	40,612 (74.95%)	10,121 (41.08%)
Region				
Midwest	981 (33.14%)	2,487 (29.97%)	13,648 (25.19%)	7,307 (29.66%)
Northeast	538 (18.18%)	1,529 (18.43%)	13,201 (24.36%)	4,639 (18.83%)
South	1,153 (38.95%)	3,141 (37.86%)	19,344 (35.70%)	9,303 (37.76%)
West	282 (9.53%)	1,118 (13.47%)	7,780 (14.36%)	3,301 (13.40%)

\* Patients with unknown values for demographics are excluded from the table

	Mandible Reconstruction n=2,960	Parotidectomy n=8,297	Thyroidectomy n=54,186	Neck Dissection n=24,636	Total Cost of Care n=90,079
Chemotherapy	\$157,633,337	\$495,742,935	\$466,071,645	\$1,630,076,607	\$2,749,524,524
Immunotherapy	\$70,679,067	\$221,772,345	\$185,825,565	\$702,801,090	\$1,181,078,067
Radiotherapy	\$54,799,409	\$202,225,863	\$139,643,293	\$522,430,353	\$919,098,918
Therapy - PT/OT	\$26,454,775	\$45,846,622	\$141,706,872	\$188,089,666	\$402,097,935
Imaging	\$24,243,622	\$58,576,406	\$128,097,094	\$224,091,125	\$435,008,247
Therapy – Speech	\$17,151,892	\$7,770,118	\$24,361,096	\$96,989,886	\$146,272,992
Index Procedure	\$106,071,600	\$68,300,904	\$438,147,996	\$831,686,724	\$1,444,207,224
Total Cost of Care	\$457,033,702	\$1,100,235,193	\$1,523,853,561	\$4,196,165,451	\$7,277,287,907

Figure 1. Cost of Care Per Patient by Treatment and Index Procedure\*



\* Per patient costs are calculated by dividing the total cost for the treatment category by the number of patients receiving that treatment over the given timeframe.

## Conclusions

- Adjuvant therapies, particularly chemotherapy and immunotherapy, account for most of the two-year costs for head and neck cancer surgeries
- Adjuvant therapy costs often far exceed the cost of the index procedure
- These findings highlight the need to consider the entire treatment pathway when evaluating economic value in head and neck cancer care
- Understanding the relationships between index procedure and adjuvant therapies is essential for evaluating the full economic impact of surgical oncology care and guiding value-based decisions

## Limitations

- Retrospective claims analyses are subject to limitations inherent to administrative data, including potential coding errors and a lack of clinical data
- Costs represent paid claims and modeled payment estimates rather than true provider costs
- Index procedure costs were estimated using CMS and national payment benchmarks, which don't reflect institution-specific reimbursement
- Per-patient treatment costs were calculated only among patients receiving that therapy, which may overstate average costs when interpreted at the full cohort level