Are Ambulatory Surgery Centers Worthwhile? An Analysis of Surgery Costs Using Time-Driven Activity Based Costing Methods

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Introduction

Ambulatory surgery centers (ASCs) are often used for outpatient surgical procedures in place of hospital operating rooms (ORs). Overall, they are generally thought to provide a less expensive option for surgeries; particularly for surgical procedures that do not require extensive hospital resources or multi-day observation[1,2]. One surgery often performed at both ORs and ASCs is concomitant carpal tunnel release (CTR) with trigger finger release (TFR) surgery. They are combined to reduce costs, allowing for the expenses of OR/ASC use and anesthesia to be incurred only once.

Objective: The objective of this study is to assess direct fixed, direct variable, and indirect costs associated with a hospital OR and an ASC for concomitant CTR and TFR.

Hypothesis: We hypothesize that the additional costs from concomitant carpal tunnel release and trigger finger release will be reduced in an ASC setting.

Methods

Separate process maps, including all steps of patient care from arrival to discharge, were constructed using combined CTR with TFR procedures in both ASC and OR settings at a multidisciplinary hospital system in metropolitan Detroit.

The time needed to complete each step of the process map was measured for all patients and used to calculate cost according to the Time-Driven Activity-Based Costing (TDABC) methodology. Total costs were broken down for comparison in the following categories:

- Direct Variable Costs: Associated with individual salaries for staff involved in patient care.
- Direct Fixed Costs: Associated with building fees and materials.
- Indirect Costs: Not directly linked to the procedure (e.g. marketing, administration, and maintenance).

All costs were obtained through the Henry Ford billing department.

Figures

Table 1: Comparison of timing data for personnel involved in CTR and TFR at the OR and ASC

Personnel	Total Minutes at ASC	Personnel Cost at ASC	Total Minutes at OR	Personnel Cost at OR
Senior Attending	29.83	$ 221.63	34.12	$ 253.47
Senior Resident	46.83	$ 38.66	54.69	$ 45.14
Anesthesia Attending	22.67	$ 107.66	17.71	$ 84.13
Anesthesia Resident	39.00	$ 32.19	29.14	$ 24.06
Anesthesia Tech	19.50	$ 8.95	14.57	$ 6.68
RN	44.08	$ 36.23	128.48	$ 105.60
PA	41.33	$ 50.50	47.69	$ 58.27
Scrub Tech	78.83	$ 43.10	79.8	$ 43.65
Surgical RN	81.17	$ 66.72	83.52	$ 68.65
CRNA	42.50	$ 38.33	46.55	$ 41.98
Cleaning Staff	42.50	$ 19.35	41.4	$ 18.85
Surgical Secretary	0.00	$ -	14.33	$ 5.14
Total Cost		$ 663.32		$ 755.62

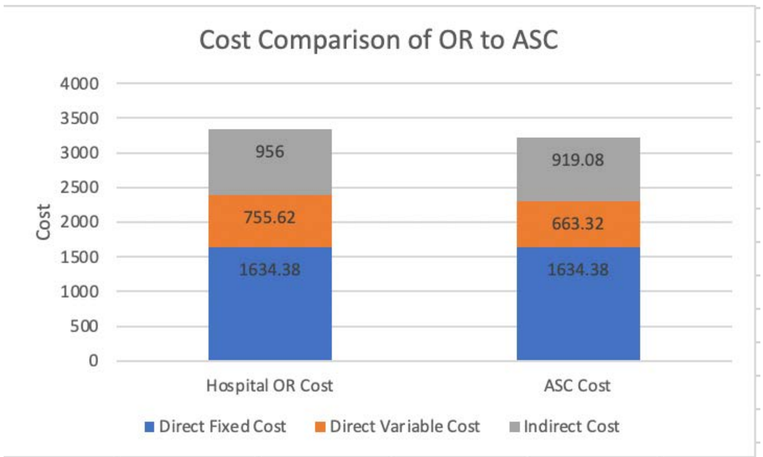

Figure 1: A comparison of the direct fixed, direct variable, and indirect costs for concomitant CTR and TFR at OR vs. ASC.

Results

OR Costs:

- Total cost for combined CTR with TFR in an OR was $3,346.
- Direct fixed cost was $1,634.38
  - 48.8% of cost
- Direct variable cost was $755.62
  - 22.6% of cost
- Indirect costs were $956 – 28.6%

ASC Costs:

- Total cost for combined CTR with TFR was $3,216.78
  - $129.22 less than the OR cost
- Direct fixed cost was $1,634.38
  - 50.8% of cost
- Direct variable cost was $663.32
  - 20.6% of cost
- Indirect costs were $919.08
  - 28.6% of cost

There was no difference between direct fixed costs at the OR vs. ASC; however, there was a $92.30 reduction in direct variable costs and a $36.92 reduction in indirect costs. When comparing time on each step, the ASC showed decreased time overall allocated by personnel thus allowing for an overall reduction of the direct variable cost attributed to the per-minute salaries of personnel (Table 1).

Conclusions

- At our institution, ASCs are only 4% more cost effective than ORs for concomitant CTR and TFR procedures. This could be due to our institution's billing procedures for direct fixed costs.
- The largest contributor to the cost reduction at ASCs was direct variable cost; this can be attributed to the decrease in time required by most personnel at the ASC.
- Direct fixed costs were the largest contributor to the overall cost of procedures and did not vary between the OR and ASC; this could be an avenue for future research in cost reduction.

References

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