

Impact of Surgeon Cost Awareness on Utilization of Supplies for Thyroidectomies

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Introduction

The national health expenditures for the United States totaled more than 3 trillion dollars in 2014¹ to account for 17.5% of the national GDP. Much literature has been devoted to accounting for and identifying sources of medical waste in the US; one of the factors that involves physicians most directly is doctors' ignorance of costs. When physicians are surveyed regarding costs of medications, tests and supplies, their accuracy rates are consistently low (11-38% within 25-50% of the true cost)²⁻⁴. Surveys addressing Otolaryngologists specifically show similar rates⁵⁻⁶. The same surveys also show that, overall, physicians do not feel that cost information is easily accessible and that if they had more information regarding costs of consumables that it would change their practice⁵⁻⁶. Several studies have shown that presenting cost data to physicians at time of ordering results in a decrease in the number of tests ordered, and a corresponding decrease in charges⁷⁻⁸. These studies suggest that increasing physician education regarding operating supply costs may lead to more judicious use of the supplies. Our objective was to determine whether providing surgeons with itemized cost information of supplies used in their procedures at regular intervals impacts on their utilization of these supplies.

Methods

Ten surgeons who routinely perform partial and total thyroidectomy procedures (>10/year) at our institution were identified. The per case supply cost for these surgeons for 2014 was calculated using Surgical Compass (The Advisory Board Company, Washington DC). This data, along with reports of itemized supply costs and usage, was supplied each month to 5 test surgeons between January 1, 2015 and December 31, 2015. The usage patterns for the remaining 5 control surgeons were recorded during this time but not shared with the surgeon. The per case supply cost for 2015 was analyzed using the Wilcoxon Two-Sample Test (SAS Version 9.3) to see if there was any difference between the two groups. In addition, per case costs were analyzed to see if there were any surgeon factors associated with high cost surgeries.

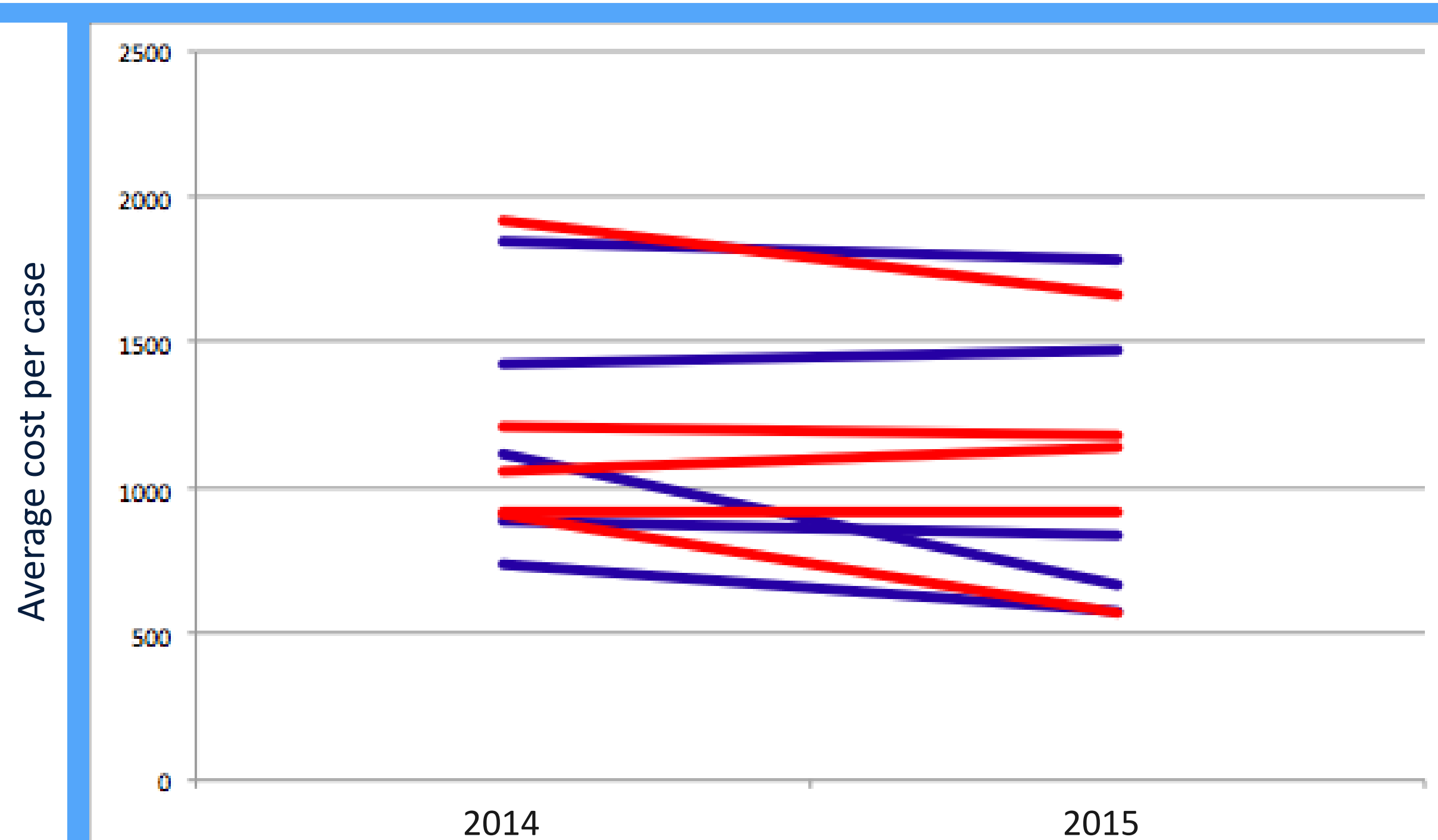


Figure 1: Average operating supply cost per case in 2014 and 2015. Each line represents a surgeon. There was no difference in change between surgeons who received monthly cost summaries (red lines) and those who did not (blue lines).

Results

The average per case supply cost for thyroidectomies was \$1205 (\$741-\$1920) in 2014 and \$1083 (\$579-\$1785) in 2015. There was no difference in the change in supply costs between surgeons who received monthly cost and supply information and surgeons who did not ($p=0.6869$, Figure 1). The average cost per case was higher for general surgeons vs. otolaryngologists, and higher for surgeons using nerve monitoring than those who did not (Table 1).

Table 1: Comparison of Average Supply Cost per Case

	Average Cost Per Case in 2015 Mean (\pm Standard Deviation)	P value
Access to Cost Information		
Monthly summaries sent (n=5)	\$1069 (\pm 531)	1.0000
No summaries sent (n=5)	\$1096 (\pm 399)	
Surgical Specialty		
General Surgery (n=3)	\$1641 (\pm 156)	0.0486
Otolaryngology (n=7)	\$844 (\pm 252)	
Surgeon Appointment		
Voluntary Staff (n=4)	\$1171 (\pm 428)	0.6069
Full Time Faculty (n=6)	\$1024 (\pm 482)	
Routine (>50% of cases) use of Nerve Monitoring		
No (n=5)	\$761 (\pm 238)	0.0472
Yes (n=5)	\$1405 (\pm 354)	
Average Surgical Time		
< 100 minutes (n=5)	\$990 (\pm 399)	0.5464
>100 minutes (n=5)	\$1176 (\pm 510)	
Volume of Cases		
<20 cases per year (n=4)	\$1053 (\pm 498)	1.0000
>20 cases per year (n=6)	\$1103 (\pm 450)	

Discussion

In our study, simply providing surgeons with monthly summaries listing operative supply costs and their utilization patterns was insufficient to effect a change in their usage of supplies for partial and total thyroidectomies. This may result from numerous factors including small study size, inconsistent pricing and availability of certain items and the involvement of additional staff such as circulating nurses and scrub technicians in usage of supplies. In addition, even though surgeons may take cost into account, other potentially competing considerations such as efficiency, education and patient safety may simply be more compelling. This study does not necessarily indicate that surgeons do not care about costs but rather that simply increasing surgeon cost awareness may not be enough to result in measurable change in operative costs. In addition, univariate analysis suggested that general surgeons and those who routinely use nerve monitoring have higher average supply costs. More research is needed to understand other potential confounding factors that contribute to operative costs of a particular surgeon.

Conclusion

Presenting surgeons with cost and utilization data did not decrease the per case supply cost of thyroidectomy procedures. Many factors play into the usage pattern of operating room supplies and simply improving surgeon cost awareness may be insufficient to effect change in this complex setting.

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