

Fine Needle Aspiration Utilization in the Community Hospital Setting: A Quality Improvement Study

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Objective

- To evaluate the impact of a quality improvement initiative regarding utilization of ultrasound and FNA prior to resection of malignant thyroid neoplasms at a community based hospital.

Methods

- In 2014, the authors conducted a quality improvement initiative in accordance with the hospital's interdisciplinary cancer committee.
- The authors explored awareness of the National Comprehensive Cancer Network (NCCN) and American Thyroid Association (ATA) guidelines for Utilization of FNA prior to thyroidectomy.
- Retrospective chart review in 2014 demonstrated FNA utilization in 53% of eligible cases.
- In 2015, a Systems wide in service presented an informational poster and fielded questions on quality improvement. Subsequent chart reviews from January 2015- July 2016 were performed.
- The two data sets from before and after the initiative were compared with regard to preoperative thyroid US and FNA utilization to improve patient safety and quality.

Figure 2: Need for Improvement of FNA by Year

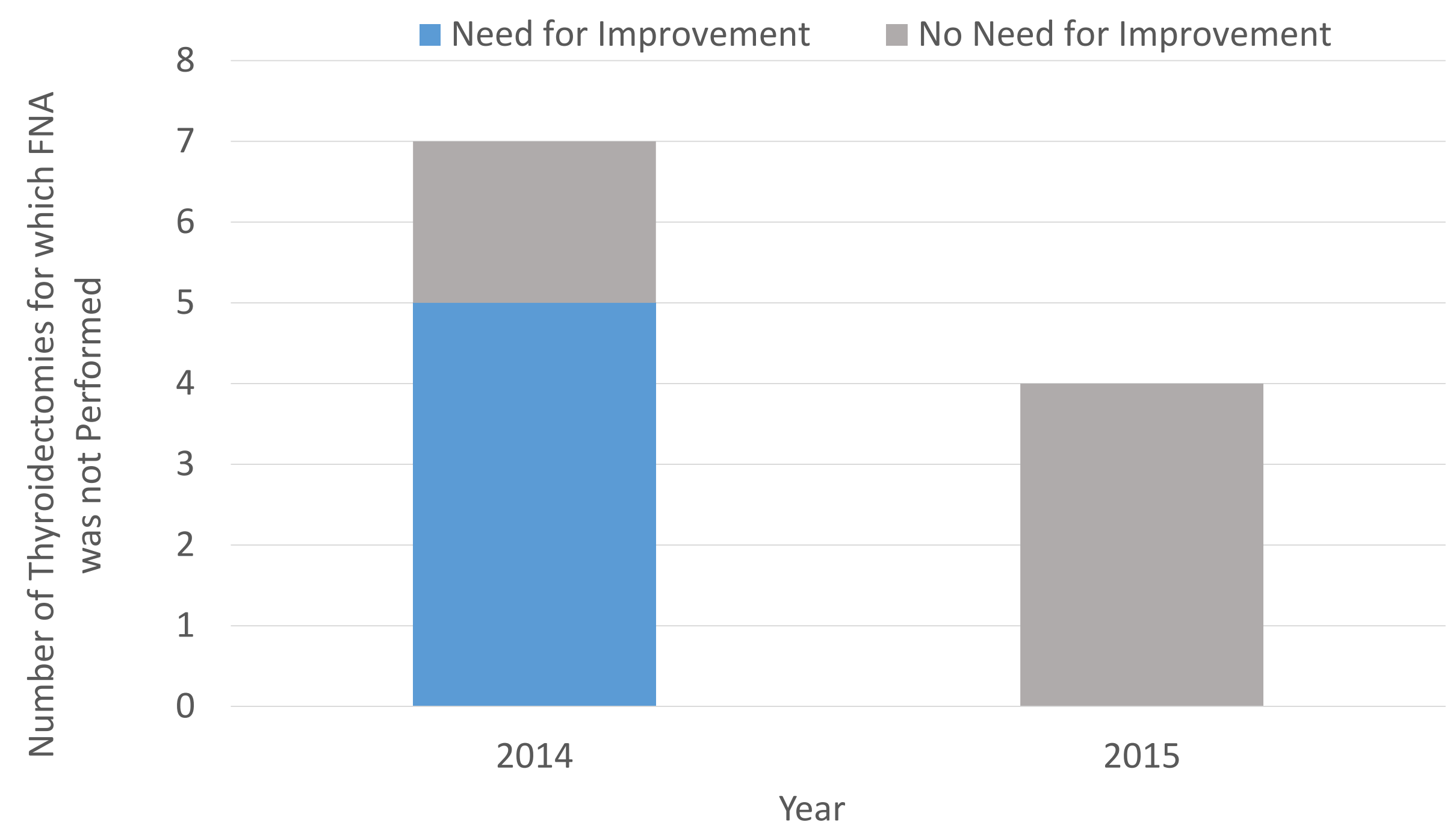


Table 1. Characteristics of Thyroidectomies Performed at Doctor's Hospital in 2014 and 2015, Overall and by Use of FNA

Characteristics of Thyroidectomy, n (%)	Overall (n=23)	FNA Performed (n=12)	FNA Not Performed (n=11)
Procedure			
Thyroid lobectomy	18 (78.3)	9 (75.0)	9 (81.8)
Hemithyroidectomy	13 (72.2)	9 (100.0)	4 (44.4)
Completion thyroidectomy	5 (27.8)	0 (0.00)	5 (55.6)
Total thyroidectomy	5 (21.7)	3 (25.0)	2 (18.2)
Pathology			
Papillary thyroid carcinoma	16 (69.6)	10 (83.3)	6 (54.5)
Follicular thyroid carcinoma	2 (8.7)	1 (8.3)	1 (9.1)
Medullary thyroid carcinoma	1 (4.3)	1 (8.3)	0 (0.0)
Multinodular goiter with areas of fibrosis, hyalinization, and calcification	1 (4.3)	0 (0.0)	1 (9.1)
No evidence of atypia or malignancy	1 (4.3)	0 (0.0)	1 (9.1)
No residual papillary thyroid carcinoma identified	1 (4.3)	0 (0.0)	1 (9.1)
Small adenomatoid nodules	1 (4.3)	0 (0.0)	1 (9.1)
FNA performed, n (%)	12 (52.2)	12 (100.0)	0 (0.0)
FNA should have occurred/area for improvement, n (%) ^a	5 (45.5)	--	5 (45.5)
Had pre-operative ultrasound, n (%)	16 (69.6)	10 (83.3)	6 (54.5)
Frozen section, n (%)	4 (17.4)	3 (25.0)	1 (9.1)

^aAmong patients for whom an FNA was not performed (n=11)

Figure 1: NCCN Guideline Recommendations for FNA Threshold

Sonographic Features

Clinical Pathology	Threshold for FNA
• Solid Nodule	
– With suspicious sonographic features	>= 1 CM
– Without suspicious sonographic features	>= 1.5 CM
• Mixed cystic-solid nodule	
– With suspicious sonographic features	>= 1.5-2 CM
– Without suspicious sonographic features	>= 2 CM
• Spongiform nodule	>= 2 CM
• Simple cyst	Not Indicated
• Suspicious cervical lymph node	FNA node + assoc thyroid nodule

Taken from NCCN Guidelines Version 2.2014

Results

- January 2014 to July 2016, 366 patients that underwent FNA or thyroidectomy were reviewed retrospectively.
- Twenty-three unique patients with histologically proven thyroid malignancy were identified. (Table 1)
- 2014: 7 of 12 patients had preoperative FNA (58%) and 9 of 12 patients had preoperative US (75%).
- Following the quality improvement initiative in early 2015, 11 of 11 patients had preoperative FNA (100%) (p=0.0155). 11 of 11 patients had preoperative US (100%) (p=0.0753).
- Overall, FNA was performed on 18 of the 23 malignant specimens (78%). Pre-operative US was performed on 20 of 23 patients (87%).

Discussion

- National guidelines for FNA have been described, as have criteria for FNA.¹ (Figure 1)
- A comprehensive paradigm for surgical intervention has been described that may be used to guide diagnostic and surgical decision making.²
- Clinician age and geographic location seems to have impact on FNA utility; showing that, increasing age and use were inversely proportional.³
- Clinician adoption of national guidelines have grouped physician adherence into clinician knowledge, attitude and behavior categories.⁴
- The most effective behavior change stems from the modification in knowledge and attitude.⁴
- Through our initial intradepartmental outreach it was evident that some of the surgeons had shied away from using FNA from misconceptions that the presence of calcifications in a nodule prevented the penetration of a fine needle. Misconceptions were addressed.
- We attribute the improvement in our institutions adherence to the NCCN guidelines to improvement in clinician awareness. (Figure 2)

Conclusions

- This study supports implementing adoption of national guidelines by establishing a departmental and hospital wide in-service to bolster clinician awareness.

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References

- National Comprehensive Cancer Network (NCCN) Clinical Practice Guidelines in Oncology. Thyroid Carcinoma, Version 2.2014
- Cooper DS, Doherty GM, Haugen BR, et al. Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. *Thyroid*. November 2009, 19(11): 1167-1214. DOI: 10.1089/thy.2009.0110
- Cannon, C., Replogle, W. (2000) Fine-needle aspiration: Survey of Clinical Utility. *Otolaryngol Head Neck Surg*, 123(5):563-5.
- Likhterov, I., Tuttle, R. M., Haser, G. C., et al, Improving the adoption of thyroid cancer clinical practice guidelines. *The Laryngoscope*. 2016